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Pollution Revolution: Maoist Environmentalism in the Late Cultural Revolution, 1970-1974

DISSERTATION

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for the degree of

DOCTOR OF PHILOSOPHY

in History

by

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2023



## **DEDICATION**

To

Mark, Judy, Sarah, Michelle, Kieran, and all my friends and family.

## TABLE OF CONTENTS

	Page
LIST OF FIGURES	v
ACKNOWLEDGEMENTS	vi
VITA	viii
ABSTRACT OF THE DISSERTATION	ix
INTRODUCTION	
The Maoist Origins of <i>Huanjing Baohu</i>	1
Chapter Overview	6
Methodology and Sources	14
“A system of industrialization without disposability”	20
Science, Knowledge Production, and the Chasm of 1978	27
Huanbao or “Environmental Protection”?	33
CHAPTER 1: <i>Literature Review</i>	
The Environment Under Mao	37
The Cadre and the Conference	45
The Global Environmental Turn	54
CHAPTER 2: <i>An Acceptable Problem: Zhou Enlai and Industrial Hazards</i>	
Introduction	59
Zhou Enlai’s Role	61
“Some New Topics That Need Scientific Research Have Been Found”	72
Conclusion	91
CHAPTER 3: <i>Encountering the World Environmental Regime: China and the 1972 UNCHE</i>	
Introduction	94
The “Swedish Initiative”	100
The PRC at the 1972 UNCHE	104
Conclusion	138
CHAPTER 4: <i>Waste to Treasure, Harms to Benefits: Comprehensive Utilization of the Industrial “Three Wastes” and Maoist Environmentalism</i>	
Introduction	143
Comprehensive Utilization of the Industrial “Three Wastes”	145

	The Mass Line, Mass Mobilization, and the Correct Political Line of Public Hazards on the Factory Floor	160
	Conclusion	176
CHAPTER 5:	<i>Branching out from the Factory: Connecting Global Environmental Science with Mao's Revolution</i>	
	Introduction	178
	“The Incurable Disease of Capitalism”	179
	Connecting the “Environmental Sciences”	188
	Conclusion: Tensions and Binaries	205
CHAPTER 6:	<i>The Worker, the Peasant, the Expert, and the Cadre: Integrating Maoist Standpoint Epistemologies at China's First National Conference on Environmental Protection</i>	
	Introduction	208
	- Part 1 -	
	Preparing for the NCEP and Constructing a National Problem	214
	- Part 2 -	
	<i>Huanbao</i> and Integrating Maoist Standpoint Epistemologies at the NCEP, August 5-20, 1973	225
	The Factory Worker	229
	The Peasant	237
	The Expert	241
	The Cadre	265
	- Part 3 -	
	<i>Huanbao</i> Storytelling	289
	Conclusion	300
CONCLUSION:	Four Questions	303
BIBLIOGRAPHY		
		325
APPENDIX A: “Criticize Lin Biao and Confucius, Take the Road of Self-reliance and Development Environmental Science [批林批孔, 走自力更生发展 环境科学的道路]” by the Environmental Geology Laboratory, Guiyang Institute of Geochemistry, Chinese Academy of Sciences [中国科学院贵阳地球化学研究所, 环境地质实验室]		
		346

## LIST OF FIGURES

- Figure 1 - A flow chart showing part of the process in transforming brewer's yeast into mononucleotides. 155
- Figure 2- Sketches from the Shanghai Liaoyuan Chemical Factory depicting their innovation of a "dust removal room (除尘室)". 175

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## ABSTRACT OF THE DISSERTATION

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by

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Doctor of Philosophy in History

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Professor Jeffrey Wasserstrom, Co-Chair

Associate Professor Emily Baum, Co-Chair

In this dissertation, I explore the genesis of *huanjing baohu* (“environmental protection” or *huanbao*) in China, tracing it back to its roots in the late Cultural Revolution (1970-1976) and global environmentalist turn of the late 1960s and early 1970s. I argue that the early 1970s saw the construction of a distinctly Maoist environmentalism in the People’s Republic of China (PRC) that emerged from growing scientific awareness of industrial pollution’s threats to public health, the environment, social harmony, and agricultural and industrial production. I show how Maoist political culture, epistemological structures prevalent during the Cultural Revolution, longstanding Maoist industrial waste reuse practices, and various health and scientific disciplines collectively shaped how environmental problems were understood and how solutions were theorized. I also elaborate how increased Chinese diplomatic and intellectual engagement with the global environmentalist movements around the year 1970 shaped Maoist environmentalism, such as through the translation and application of new concepts from environmental sciences. The elements of the Cultural Revolution that have often been criticized as chaotic and destructive—like mass mobilization, extreme ideological commitment, societal upheaval, the

struggle against old customs and ways of thinking, and the idealistic vision of a radically improved society—also facilitated transformations in environmental thought. Many of the scientists, cadres, workers, intellectuals, technicians, medical workers, and peasants that people my narrative were drawn to *huanbao* precisely because it appeared to offer an especially revolutionary way of reconfiguring the human-nature relationship in a way that broke with the old, conservative thinking and ignorance of the past. Correspondingly, for many, protecting the environment became an integral part of the Cultural Revolution’s vision of a truly socialist, revolutionary society.

I analyze a rich array of sources, like Chinese scientific and trade journals, popular magazines, speeches, semi-archival official documents, newspapers, factory reports, memoirs, conference documents, scientific studies, and other materials. The dissertation explores Zhou Enlai’s role in raising awareness of industrial pollution as a societal issue. I also provide a history of “comprehensive utilization” as an industrial recycling practice and its evolution into a Maoist environmentalist practice. The dissertation also provides a history of two conferences that are often mentioned in passing in histories of environmentalism in China, but which have not been deeply analyzed: the June 1972 United Nations Conference on the Human Environment (UNCHE) in Stockholm and China’s first ever National Conference of Environmental Protection (NCEP) in Beijing in August 1973.

# INTRODUCTION

## I. The Maoist Origins of *Huanjing Baohu*

In May 1970, Premier Zhou Enlai visited a photosensitive film producing factory in the city of Baoding in Hebei province. Zhou asked a series of questions that caught the factory's representatives by surprise. He wanted to know what happened to the water that the factory used each day in their industrial processes. He singled out one factory representative, asking, "Where does your factory's water go every day? After you are done with it, where does it all go?" In a second meeting later that month, also with representatives from the Baoding film factory, Zhou asked once again, "So, is Baoding [Film Factory] clean? Did your chemical works department send people to survey and do tests? Well, how does it all happen?"<sup>1</sup>

Zhou's probing questions indicated a burgeoning understanding and concern in China about the interconnections between industrial processes and their impacts on public health. The following year, in March 1971, Zhou called for a mass campaign within China's factories to eliminate industrial pollution, targeting what he called the industrial front's "three wastes" (*sanfei* 三废; wastewater, waste gas, and waste solids). A year later, the People's Republic of China (PRC) sent a delegation to the landmark June 1972 United Nations Conference on the Human Environment (UNCHE) in Stockholm—the first international environmental protection

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<sup>1</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], "Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai's Speeches and Talks on Environmental Protection]," in *Huanjing Juexing: Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 463.

conference of its kind. In August 1973, when China was still in the throes of the Cultural Revolution, Zhou appointed a special group of central Party leaders to organize China's first ever National Conference on Environmental Protection (第一次全国环境保护会议 or NCEP), held at the Xiyuan hotel in Beijing. The popular science magazine *Environmental Protection* (环境保护) began publication in Beijing also in 1973. The Party's authoritative political theory journal *Red Flag* further highlighted the danger of environmental problems in their September 1974 issue, calling for people across the nation to "Emphasize Environmental Protection Work" ("重视环境保护工作"). These instances represent just a fraction of the diverse flurry of activity that emerged in China in the early 1970s focused on reforming the delicate relationship between humans and nature. The Chinese Party-state eventually consolidated this activity under the concept *huanjing baohu* (环境保护), literally "environmental protection" in English and *huanbao* for short.

These developments in China paralleled the worldwide institutionalization of environmental concerns during the late 1960s and early 1970s. In July 1967, Sweden established the Naturvårdsverket (Swedish for "Nature Conservation Agency")—the world's first government authority dedicated to "environmental protection."<sup>2</sup> In 1970, the United States federal government established the Environmental Protection Agency (EPA). People around the world celebrated Earth Day in April 1970. In 1971 the agronomist Jose Lutzenberger founded

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<sup>2</sup> J. R. McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World* (W. W. Norton & Company, 2001), 365-367.

Brazil's first important environmental initiative, the Associação Gaúcha de Proteção ao Ambiente Natural (Agapan; in English Gaucho Association for the Protection of the Natural Environment). The Asian Environmental Society was founded in Manila in 1972, and so was the UNCHE—an event that marked a global consensus that the human-nature relationship needed somehow to be changed. This remarkable proliferation of environmental initiatives was a global response to what historian John McNeill called a compelling and translatable “package of ideas” about the dangers of industrial pollution to nature and society.<sup>3</sup>

Although it is clear that a similar evolution in environmental thought and management was taking place in China as across the globe during the early 1970s, integrating these two narratives is not so straightforward. For one thing, Chinese and Anglophone mainstream storylines of the Cultural Revolution (1966-1976) tend to reduce the period to its major themes of social turmoil, ideological extremism, solipsistic isolationism, and environmental destruction. The case for the environmental addendum to this list was most effectively made by historian Judith Shapiro's still influential book *Mao's War against Nature* (2001), where she scrutinized the destructive ecological impact of Mao's mass campaigns and their ideological underpinnings. The resulting conventional wisdom posits that a serious approach to environmental issues emerged only after Mao's death and the political transition to Deng Xiaoping—when the Maoist ideological fever broke, political chaos ended, and rational, scientific, and bureaucratic approaches to all manner of governing problems resumed. Richard Louis Edmonds, a long-time scholar and observer of China's environmental policies, summarized this basic story in 2011:

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<sup>3</sup> McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World*, 353.

[T]he whole of the Maoist period with its political repression, appeal to utopian extremes, dogmatic uniformity and forced relocations of large numbers of people was a highly destructive era for China's environment. In particular, the 1960s and early 1970s saw a virtual halt to scientific work throughout the country as radical politics led to a political and social meltdown...During the early years of the post-1978 opening and reform period, increased contact and information from outside led to gradual change in the study of, and policies towards, the environment in China.<sup>4</sup>

Similarly, the Chinese experience remains peripheral to the global environmentalist story. Dovetailing with the dominant dichotomy of environmental ignorance under Mao and environmental awareness under Deng, narratives of global environmentalist developments largely postulate China as a passive recipient of Western environmental thought, only formally and seriously engaging with environmental problems in conjunction with the broader reform initiatives and "reopening" to the world that followed Mao's death. As one recent book about the historical construction and global ascendance of the concept of "the environment" put it, China only "engaged formally with environment policy (alongside general reform) from 1979. China's National Environmental Protection Agency was created in 1988."<sup>5</sup> Clearly, there is more to the story.

How are we supposed to deal with the fact that *huanjing baohu*—as a meaningful constellation of ideas and practices meant to manage the human-nature relationship—first emerged in China during the late Cultural Revolution (1970-1976), amidst and alongside broader

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<sup>4</sup> Richard Louis Edmonds, "The Evolution of Environmental Policy in the People's Republic of China," *Journal of Current Chinese Affairs* 40, no. 3 (November 7, 2011): 15-16.

<sup>5</sup> Paul Warde, Libby Robin, and Sverker Sörlin, *The Environment: A History of the Idea* (Johns Hopkins University Press, 2018), 171.

global environmentalist trends? Why and how did a period perceived as an “environmental war” also yield the beginnings of “environmental protection”? This is the unresolved paradox at the heart of this dissertation.

To answer these questions, I place the genesis of *huanjing baohu* back within the contexts from which it came: the late Cultural Revolution (1970-1976) and the global environmentalist activity of the late 1960s and early 1970s. My main argument is that in the early 1970s a unique, Maoist environmentalist program emerged in the PRC out of the growing awareness and knowledge of the various externalities of industrial pollution, such as endangered public health, a degraded environment, social conflict over what to do with toxic pollution, and dampened agricultural and industrial output. This environmentalism was shaped by Maoist political culture and epistemological frameworks dominant during the Cultural Revolution, longstanding Maoist industrial waste recycling practices, health and medical disciplines, and scientific fields that were associated with environmental problems (like geochemistry and forestry). Additionally, increased Chinese diplomatic and intellectual engagement with the global environmentalist turn around 1970 yielded new conceptual vocabularies, values, and technologies. At the first National Conference for Environmental Protection in Beijing in 1973, the Party-state explicitly unified these various practices and ideas as “environmental protection” (*huanjing baohu*), establishing *huanbao* as an integral part of national policy and as a social ethos.

I show also how the elements of the Cultural Revolution that have often been criticized as chaotic and destructive—including mass mobilization, extreme ideological commitment, societal upheaval, the struggle against old customs and ways of thinking, and the idealistic vision of a radically improved society—also facilitated transformations in environmental thought. Many of



the scientists, cadres, workers, intellectuals, technicians, medical workers, and peasants that people my narrative were drawn to *huanbao* precisely because it appeared to offer an especially revolutionary way of reconfiguring the human-nature relationship in a way that broke with the old, staid environmental thinking and methods of the past. Correspondingly, for many *huanbao* became an integral part of the Cultural Revolution's vision of a truly socialist, revolutionary society that could harmoniously solve the environmental problems that emerged alongside economic development.

## II. Chapter Overview

My dissertation is structured into six chapters between this introduction and a conclusion. Collectively, they cover in-depth the historical construction of a Maoist environmentalism in the years 1970-1974. This was the key period in the establishment of an environmentalist consciousness, a public discourse, and a set of environmentalist activities that ultimately came to be united under the term *huanjing baohu*. The term can hardly be found at all in documents in 1970-1971, as Chinese environmental actors initially engaged with industrial-environmental problems through preexisting knowledge disciplines like “industrial hygiene” (*gongye weisheng* 工业卫生), “health and medicine” (*yiliao* 医疗 and *weisheng* 卫生), the industrial “three wastes” (*gongye sanfei* 工业“三废”), and practices like “comprehensive utilization” (*zonghe liyong* 综合利用). By 1972, a term borrowed from Japan—“public hazard” (*gonghai* 公害)—was increasingly used to describe pollution and other problems linked to industrial life and its felt and seen side effects. Following the first National Conference of Environmental Protection in August 1973, however, the term *huanjing baohu* had become the hegemonic term to describe the

interconnected ideas and practices that were aimed at mitigating the externalities of industrial society. These chapters are generally structured along with this temporal shift in meaning across these years, showing how *huanjing baohu* emerged from the confluence of Maoist political ideas and epistemological values, international scientific and environmentalist discourses, global diplomacy, and preexisting knowledge disciplines and production practices.

Chapter One offers a more thoroughgoing historiographical study and analysis of the critique that both Chinese and Anglophone scholars have made about the environment and environmental attitudes under Mao (1949-1976) as catastrophic and ignorant. Such an indictment mirrors the criticisms of the Mao era's impact on various aspects of Chinese society, including politics, economics, education, culture, and ethnic relations. This narrative, established by the post-Mao Party itself and Dengist reformers, posits that Maoist extreme leftism assumed that environmental problems were exclusively a capitalist issue, rendering people ideologically blind to China's evident ecological degradation.

Additionally, I provide an overview of what little Chinese and Anglophone scholars have had to say about environmental developments in China during the 1970s. So far, narratives have cohered around one person, Zhou Enlai, and one event, the 1972 UNCHE in Stockholm. This person and this event are important parts of the puzzle, but the significance of environmentalist developments in this period cannot be reduced to the two of them. Moreover, the principal problem in these post-Mao accounts is that Zhou and the UNCHE appear in these stories as rational bulwarks of environmental thinking *contra* the broader context of the Cultural Revolution—as if the advancements in environmentalist thinking they represent were made *in spite* of the Cultural Revolution. This deception is one reason why serious and legitimate

Chinese environmental protection efforts continue to be seen principally as a product of the post-Mao period. I wrap up Chapter One by providing a part-historical account, part-literature review of the global intellectual developments that were behind the global environmental turn around 1970. This works to both set the global stage for my study of developments in China, as well as show how China's story continues to be peripheral to the global story.

Chapter Two is a study of the first stage in the development of *huanbao*: the recognition from Party leadership that China suffered from pollution and related problems linked to industrialization. This “problem-defining” or “problem-accepting” phase was the necessary precursor to organizing bodies of knowledge and associating particular practices with those problems. A significant part of the chapter is dedicated to examining the role of Zhou Enlai, through his speeches and published comments, in legitimizing industrial pollution as a societal issue and mobilizing collective action against it. Chapter two also underscores the use of preexisting conceptual frameworks and disciplines like “industrial hygiene,” “occupational disease,” “environmental hygiene,” and “eliminate the ‘three wastes’” to address the environmental consequences of industrialization before *huanbao* came into use. To this, I underline the issuance of Document 131 in April 1971 by the Ministry of Health, which was a response to Zhou's concerns, and initiated an important mass factory-based campaign to eliminate the industrial “three wastes” (wastewater, waste gas, and waste solids).

The chapter also uses Chinese scientific reports, journals, and Party-state documents from 1970-1972 to demonstrate early features of the Chinese response to widespread industrial pollution. I highlight five key early developments in this period that were important foundations for *huanbao*: (1) the reconfiguration of geographic space through tracing microscopic pollution,

(2) the perception that pollution problems were intimately tied up with human health problems, (3) the role of workers themselves in innovating anti-pollution solutions and as critical knowledge producers, (4) the centrality of a practice called “comprehensive utilization” (综合利用 *zonghe liyong*), and (5) the situation of anti-pollution efforts as “revolutionary” and affixing blame for pollution on the Party’s political targets. I investigate each of these topics in more depth in later chapters.

Using speeches, UN documents, newspapers, and collections of internal documents, Chapter Three provides a history of the PRC’s participation at the UNCHE in Stockholm in 1972, including the delegation’s preparation, participation, and post-conference reflections. Western scholars regard this conference as pivotal in shaping global perspectives on common environmental problems and their scientific interpretations. Transnational cooperation on shared environmental issues was certainly one of the more important fibers of the global diplomatic web which the PRC was increasingly caught up in following their admission to the United Nations in October 1971. Both Chinese and Anglophone scholars like to frame the UNCHE as an external stimulus that provoked China’s “environmental awakening,” or that sparked the “beginning” of “environmental protection” in China. This chapter argues that this conference was not China’s awakening to environmental issues, but a moment where nascent, ongoing Chinese theorizations of environmental problems encountered, and conflicted with, a global hegemonizing environmental discourse from capitalist countries which promoted a particular depoliticized and technical approach to environmental problems. In the context of the global Cold War, the conference incited the Chinese delegation to frame their analyses of environmental problems

against others, compare China's environmental problems with those in other countries, and sharpen Maoist analyses of the global environmental crisis.

The conference also instantiated China as a stakeholder in the web of global environmental diplomacy, which was a factor in the ultimate adoption of the term “environmental protection” to describe subsequent Chinese anti-pollution activities. Furthermore, China's participation in the UNCHE catalyzed connections with global scientific and policy knowledge flows on pollution and environmental thinking. China was not an empty vessel to be filled with environmental knowledge from Western countries, but rather was an active stakeholder in developing solutions to environmental problems identified by science.

By focusing on environmentalist movements within factory workspaces, Chapter Four delves deeper into the Zhou Enlai-instigated mass campaign to comprehensively utilize the industrial “three wastes,” showing how it evolved from a resource management and waste reuse practice into an explicitly environmental strategy. This campaign encouraged factory workers and technicians throughout the nation to simultaneously eliminate pollution and increase production by innovating ways to turn wastewater, waste gas, and waste solids (the “three wastes”) into other useful products and substances. Comprehensive utilization was a holistic industrial practice that dated to the nation building ethos of the 1950s which sought to maximize the early PRC's strained production capabilities by finding some use for the waste byproducts of industrial processes. Once it became known that industrial processes produce toxic pollution endangering human health and other production processes (e.g., agriculture), industrial “waste” took on a new meaning—and comprehensive utilization with it. By the 1973 NCEP, comprehensive utilization would become solidified as the central *huanbao* activity in the remaining Mao years.

This chapter also elaborates two other important contributions from industrial workspaces to the Maoist environmentalist project. The first was the earliest articulation of the correct political line on environmental problems, which was theorized by a chemical technician named Hua Qingyuan, who worked at a pharmaceutical factory in Shenyang. Hua's essay embodied the Maoist belief that workers, through their direct interaction with the industrial environment and their rootedness in the realities of production, had the necessary consciousness for discerning the correct approach towards environmental challenges within the parameters of China's revolutionary project. The Party widely disseminated Hua's essay as the authoritative interpretation on how to align environmental responsibilities with Maoist ideological principles. It also served as evidence that the practical understanding and experience of workers would be the cornerstone of Chinese environmental policy. Many of Hua's ideas would be echoed by central Party leaders at the NCEP in August 1973, and afterwards. During Zhou's 1971-1972 mass campaign to eliminate the "three wastes," factories produced reports and essays about how they used Maoist political practices like self-criticism and mass study classes alongside Maoist epistemological theories like indigenous versus foreign methods and folk versus expert knowledge to eradicate pollution in their factory. The Party distributed these reports as models for how to organize anti-pollution work at the factory level across the country.

Whereas Chapter Four looks at the contributions of China's industrial front to Maoist environmentalism, Chapter Five looks at the intellectual and scientific realm. In the early 1970s, Chinese intellectuals and environmental theorists frequently translated accounts of dire and critical environmental problems—what were referred to as "public hazards"—in capitalist countries as a way of critiquing the capitalist system more broadly. These accounts were produced by various actors in capitalist countries and translated into Chinese. However,

translating these self-critiques also legitimized the environmentalist values and concepts behind them, allowing them to be repurposed in the Chinese context.

The chapter also examines the adoption of the term “public hazard” (*gonghai* 公害), which was translated from Japan, to describe environmental problems in China. This term offered a competing framework for understanding environmental (and other) problems caused by industrialization but was ultimately subsumed by *huanbao* after the 1973 NCEP. This section also explores how Chinese scientists and researchers contributed to the understanding of “public hazards”, linking global disciplines of knowledge to domestic mass campaigns on industrial pollution control. For instance, researchers at the Beijing Forestry Institute translated foreign accounts of pollution in capitalist countries in order to critique capitalism as well as to simultaneously promote new forestry practices developed in foreign countries for Chinese use. Interventions by scientists like these expanded solutions to “public hazards” beyond factories, offering a more holistic and ecological solution—something we would more easily recognize today as “environmental protection.”

Chapter Six is a long, three-part study of the August 1973 NCEP. The NCEP coronated *huanbao* as the official term and framework for managing the human-nature relationship in China. The conference did so by combining preexisting practices that were recently seen to be relevant to environmental problems, like comprehensive utilization and afforestation, with disciplines like health and medicine, chemistry, forestry, and others. Part one highlights how scientific investigations into “three wastes” pollution incidences created a *national* picture of Chinese polluted landscape, in turn making the national environment an object to be governed and a topic for which a national conference could be held. Part 2 discusses the NCEP’s events

and speeches, focusing on the contributions of political cadres, peasants, factory workers, and experts. The combination of these epistemological standpoints—seen prior in “three-in-one” (*sanjiejie* 三结合) scientific research combination teams—that Maoist ideology considered necessary for innovating genuine revolutionary knowledge and practices. This combination of proletarian/peasant experiential knowledge, scientific expertise, and revolutionary consciousness was meant to create a truly revolutionary and holistic environmentalism that would resolve environmental issues unresolvable in capitalist nations. Part 3 explores the role of print media in disseminating the idea of *huanbao* after the NCEP, showing how *huanbao* became a public discourse following the conference. Altogether, I argue that the NCEP was not just—or not even mostly—a bureaucratic solution to China’s environmental problems, but rather signified an organized, comprehensive, and revolutionary effort to establish a new relationship between the Chinese people and their environment. While there were bureaucratic and regulatory outcomes following the conference, the environmentalism borne from the NCEP was primarily envisioned as a mass-based revolutionary movement that emphasized direct action, non-expert epistemologies, and democratic responsibility.

I conclude by reflecting on four questions that the dissertation solicits: (1) What were the implications of the political transition from Mao to Deng on the evolution and interpretation of *huanbao*? (2) What are some underappreciated lasting legacies of the PRC’s efforts to confront so-called “public hazards” and environmental problems in the 1970s? (3) How did natural, wildlife, or environment qua environment concerns fit into Maoist environmentalism—or did they? (4) Does the truncated Maoist effort to develop a revolutionary environmentalism hold lessons or alternative models for us today?



### III. Methodology and Sources

So laid out, this dissertation is less an environmental history than it is a history of environmentalism. My approach is to highlight the role of ideas, values, and belief systems in influencing the course of environmental action. As such, the Chinese descriptions of an environmentalist program that appear throughout this dissertation should not be read as reflecting the environmental reality on the ground. Rather, they reflect an idealized notion of what a Maoist environmentalism ought to look like. For example, many documents I use were produced by cadres or workers from a factory and published for the consumption and education of cadres and workers at other factories that might learn from them. However, I assume that was not the only audience in practice, and other people were reading them as well, especially people with a significant degree of power within the Party that were deciding to publish or promote them. When such a document makes claims about having fully solved pollution within a factory or having successfully transformed X industrial waste into Y useful resource, this should not be taken at face value as reflecting physical reality. One of the main tensions that comes through in documentation about environmental protection in the late Mao period is the frustration of cadres promoting environmentalist practices with the intransigence and ignorance of workers who simply were not willing to do the extra work or thought it a waste of time. Consequently, cadres often emphasized the importance of providing more education and propagandizing the correct political line. An anecdote can demonstrate my point here.

In October of 1971, Zhou Enlai and Ethiopian Emperor Haile Selassie toured a sewage treatment plant in Beijing. An official, apparently aware of Zhou's concerns about pollution,

proudly showed them a fishpond that they used to measure the quality of their treated water. The worker explained to them that if the fish survived, it indicated to them that their sewage treatment was successful. Zhou, apparently having never seen this technique, was deeply impressed, saying “You have solved this problem. This is a contribution to the world. This is a big problem. It must surpass the developed world’s level. This is what Chairman Mao said.”<sup>6</sup> Initially, this incidence would seem to evidence the impressive application of a self-reliant and frugal attitude toward confronting a problem in a way that would make Mao himself proud. However, it turns out that the BPC workers had actually constructed a ruse to fool Zhou. A factory cadre had put the fish in a pond with clean water totally unrelated to their treatment processes. Zhou was reportedly incensed when he later found out, saying, “How can a state cadre or a member of the Communist Party do such a thing, how can he use fraud to deceive people? This is very bad.” Zhou then made the Ministry of Foreign Affairs conduct a self-criticism to the foreign guests who had seen the fish.<sup>7</sup>

If it had not later come out that the fish was a trick, one would be tempted to wax lyrically on the ingenuity and bootstrap nature of the solution—just as Zhou did. Of course, in one sense, it is more likely that anecdotes involving a Party leader like Zhou are more likely to yield these kinds of outcomes given the natural desire to impress him. Most environmentalist

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<sup>6</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Talks and Speeches on Environmental Protection],” 468.

<sup>7</sup> Beijing shi geming weiyuanhui huanjing baohu bangongshi 北京市革命委员会环境保护办公室 [Environmental Protection Office of the Beijing Municipal Revolutionary Committee], “Zhou Zongli Dui Huanjing Baohu Shiye de Qinqie Guanhuai 周总理对环境保护事业的亲切关怀 [Premier Zhou’s Warm Concern for the Cause of Environmental Protection],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 478–80.

innovations were not created under such pressures. But the point is simply that I am less interested in, for example, whether certain anti-pollution methods worked—presumably many of them likely did—and I am more interested in how the attempted solutions intellectually and ideologically came to be. Why did the workers think using a fish to demonstrate the quality of treated sewage water was the appropriate strategy to impress Zhou Enlai? What many of these sources *are* helpful for doing is determining the attitudes, aspirations, and official narratives regarding environmentalism within the context of Maoist China in the late Cultural Revolution. In short, I can show that a Maoist environmentalism existed, I cannot show that it worked or that the environment it imagined was real.

Correspondingly, I do not offer a chronological cataloging of the degradation of the PRC's ecological state over time. Arguably, the ongoing preoccupation with that story is one reason why the intellectual and discursive origins of *huanbao* in the Cultural Revolution remain obscured: even as *huanbao* was born in the early 1970s, the Dengist developmentalist regime that soon followed it only meant China's environment got worse. By adopting such a materialist view, the significance of the birth of *huanbao* in the early 1970s will seem insignificant.

The dissertation is based on a broad array of textual Chinese-language primary sources from the 1970s. I draw from scientific journals, Chinese and English newspapers, compilations of “three wastes” reports and studies, popular science magazines, conference speeches, studies on industrial hygiene, theoretical essays, and all kinds of published official document collections. Because this project occurred at a time when historical research in the PRC (especially of the Mao period) was extremely difficult, I procured many of these documents from online and personal booksellers in China. Ideally, political weather permitting, the next stage of this project

would include oral history interviews or archives in China. When possible, I have tried to read these documents against the grain and tease out implicit conflicts and disagreements between different groups. At the same time, a critical goal of this dissertation has been to reconstruct Maoist *huanbao* from the perspective of those who built it. Conveniently, this endeavor involves embracing the belief systems and ideological underpinnings that motivated those individuals. In the case of the creators of *huanbao*, assuming their sincerity allows us to engage more deeply with their ideas, to understand why they saw these concepts as revolutionary, and to see how they believed they could contribute to environmental solutions.

This approach does not suggest that the producers of my sources were always right, or that they were not influenced by their context or personal motivations. During the Cultural Revolution, there were profound and dangerous implications for expressing dissenting opinions or critiques of the established order, whichever it was that day. This pressure may have forced some authors to self-censor or present their views in a way that aligned with the dominant political winds. But by analyzing the “public face” of these actors—that is, their expressed beliefs and ideas, whether sincerely held or not—I aim to illuminate the collective thought processes and ideological and political frameworks that shaped it. Indeed, *huanbao* was an ideological and political project: it recognized that environmental problems often are the result of misaligned incentives behind political and economic systems (like capitalism). Establishing the “correct” political line and disciplining thought and action along that line was central to *huanbao*. Illustrating that logic is central to any attempt to grasp the revolutionary and socialist nature of *huanbao*.

I often cite Qu Geping (曲格平) and Peng Jinxin's (彭新近) 2010 part-document collection, part-memoir *Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection* (环境觉醒:人类环境会议和中国第一次环境保护会议). This published book holds an untapped collection of official high-level state documents related to the UNCHE and the NCEP, like speeches and communications between various departments and administrative units. It also includes several memoirs and essays from Qu Geping about his experience as a bureaucrat amidst all of these developments.

Qu Geping is a complex figure whose perspective should be carefully interpreted. After the transition to Deng Xiaoping, Qu continued climbing the ranks of China's environmental bureaucracies, eventually becoming Director of the State Environmental Protection Administration in the late 1980s and early 1990s. Partly as a result of his long engagement with environmental issues and partly due to his own self-stylings, Qu is sometimes called the "father" of environmental protection in China (as is Zhou Enlai). I am at times critical of his interpretation of environmentalist developments in the late Cultural Revolution, despite his participation in some of them. Expectedly for a post-Mao bureaucrat, he chastises the Mao period for its extreme leftism and blindness to environmental problems, while simultaneously underlining the UNCHE and NCEP as the beginning of environmental protection. Because he was such a successful environmental bureaucrat in the post-Mao period, it is likely that this apparent contradiction is more a reflection of the need to toe the post-Mao Party's broader assessment of the Mao period's mistakes as well as credit the post-Mao government (of which he was part) with initiating the real, serious environmental protection regime. His narratives,

therefore, may embody a tension between his personal experience during the Cultural Revolution and the dominant political narrative he had to adhere to during his tenure in the post-Mao era. His positionality within this narrative can be embodied in his own words from a 1997 essay, “From the early 1970s to the early 1980s, China went from chaos to governance, from darkness to light.”<sup>8</sup>

These problems in Qu’s account also point to the challenges of historicizing environmental policy in the PRC more broadly—a field inherently fraught with political and ideological stakes, and one that continues to grapple with the legacy of its Maoist past. An underappreciated aspect of the early Dengist reformers’ efforts to establish a sense of legitimacy was the way in which reformers sought to blame the Mao era en toto for China’s poor environmental state, and to initiate their own “real” and “serious” environmental protection program that was decidedly not Maoist and rooted in bureaucratism, the elevation of expertise, and legal regimes. A goal of this dissertation is to begin unravelling Chinese environmentalism’s more intricate and contested history than the linear narrative of progress often offered in state-sponsored histories. Regardless, what is most valuable in Qu’s book is the collection of official, unedited documents that he has compiled and that would otherwise be difficult to find.

Lastly, my narrow focus on 1970-1974 means that I am able to provide a textured and immersive account, teasing out step-by-step the intellectual physics that created *huanbao*. It also allows me to preserve the particular potency of these early 1970s developments. The in-depth

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<sup>8</sup> Qu Geping 曲格平, “Huiyi Zhou Enlai Zongli Dui Huanjing Baohu Shiye de Zhichi He guanhuai 回忆周恩来总理对环境保护事业的支持和关怀 [Recalling Premier Zhou Enlai’s Support and Care for Environmental Protection],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 472–77.

exploration of this bounded moment allows us to more fully appreciate the complex assemblage of factors and contingencies that coalesced into a unique environmentalist ideology. But it also yields a story that at times is disembodied from deeper trends regarding China's environmental history. It does not, for instance, allow for a full examination of how premodern ideas about the environment influenced the formation of *huanbao*. However, some words may be said here about my dissertation's relation to historical of China's long-term environmental trends.

#### **IV. "A system of industrialization without disposability"**

The received "longue durée" image of China's environmental history is broadly declensionist.<sup>9</sup> In *China: Its Environment and History*, Robert Marks provides a four-thousand-year broad overview of China's environmental history, covering the neolithic period up through the PRC period. The essence of the book revolves around the interaction between the predominantly agrarian Han Chinese society and the two major ecosystems they depended upon, the grain-based north China plain, supported by well irrigation, and the rice paddy system in the south. Marks argues that there was long-term continuity in the alliance between Han farmers and the Chinese state that drove Han demographic and territorial expansion to encompass a large part of what is now the People's Republic of China. Marks's narrative presents a stark portrayal of how long-term unchecked exploitation of nature, driven by the pursuit of human welfare and warfare, has led to a drastic decline in China's biodiversity and inflicted large-scale environmental disasters. Despite past calamities, Marks argues that China's population managed to flourish due to technological advancements that helped overcome ecological barriers—that is,

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<sup>9</sup> This term "declensionist" originates from William Cronon to describe environmental narratives that portray the natural environment as having been in a pristine, ideal state in the past, but as being in a state of worsening degradation in the present due to human actions, see: William Cronon, "A Place for Stories: Nature, History, and Narrative," *The Journal of American History* 78, no. 4 (March 1, 1992): 1347.

until environmental exhaustion became evident by the 19th century. The book concludes with a grave warning that China's rapid industrialization and population growth, coupled with its relentless commitment to economic expansion, could deplete global resources and hold profound implications for the future of our planet.<sup>10</sup>

This story of China's premodern environmental degradation provides important context for the Maoist environmentalism of the 1970s. In many ways, the kind of environmentalism that materialized in the early 1970s was deeply informed by the Party-state's longstanding belief that it had improved China's pre-1949 degraded conditions—a state that had persisted from the late imperial period and that Marks's (and others') narrative builds to. To this point, Marks writes:

[I]mpoverishment may have stoked the enthusiasm of countless millions of China's rural people for change and for support for the Chinese Communists to do so, but the impoverished natural environment would not make that an easy task. Among other things, the Chinese Communists inherited a seriously degraded natural environment... Despite inheriting a war-ravaged country that was overwhelmingly rural and suffering the consequences of deforestation and environmental degradation, there can be little doubt that the sixty-year history of the People's Republic has seen China transformed from an agrarian society into one of the largest, but arguably most polluted, industrial economies on earth.<sup>11</sup>

Indeed, high-level cadres at the NCEP in 1973 gave speeches extolling the progress that had already been made in “protecting” and “improving” the environment they inherited, identifying

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<sup>10</sup> Robert Marks, *China: Its Environment and History* (Rowman & Littlefield Publishers, 2012).

<sup>11</sup> Marks, *China: Its Environment and History*, 263-265.



how the Party had made the Chinese people safe from the problems of the pre-1949 past like large-scale natural disasters, destitute poverty, plagues, drought, diseases, a degraded economy, and poor health. However, this state-sponsored narrative was predicated on a different conceptualization of “the environment” than our understanding of the term today, though the two became briefly conflated in the early 1970s. Anthropologist Adam Liebman described this Maoist conceptualization of what constituted China’s environmental condition as a “historically-specific subjugation to the world/cosmos” that was defined by “the devastating effects of feudalism, as well as colonial incursions, widespread opium addiction, imperialism, endless war, and environmental disasters such as earthquakes, droughts, and floods.”<sup>12</sup>

This is very different from the conception of “the environment” developed globally in the 1950s-1970s wherein focus shifted towards universal problems arising from industrialization and pollution, concerns over the sustainability of resources, and broader ecological problems. In the former narrative, economic development is not the problem to environmental problems, it is the solution. In the latter, this is clearly reversed. The Party-state’s efforts to reconcile this historical narrative with the emerging global environmentalist perspective in the early 1970s led to a brand of environmentalism that denied the contradiction between economic development and environmental problems. As one cadre defiantly put it at the NCEP, “The people’s living environment has not deteriorated, but has been greatly improved! This iron fact strongly refutes the reactionary fallacies of ‘development causes pollution’ and ‘population growth causes pollution’.”<sup>13</sup> This belief, however, was *not* that industrial processes in socialist China did not

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<sup>12</sup> Adam Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China,” *Critical Asian Studies* 51, no. 4 (August 31, 2019): 537–57.

<sup>13</sup> Gu Ming 顾明, “Yi Lv xian Wei Gang Gao hao Huan jing Bao hu Wei Guang da Ren min He Zi sun Hou dai Zaofu -- Gu Ming Tong zhi Zai Quanguo Huan jing Bao hu Hui yi Shang de Fa Yan 以路线为纲搞好环境保护 为中国人民和子孙后代造福 -- 顾明同志在全国环境保护会议上的发言 [Taking the Line as the Guiding Principle, We Must Do

yield substances that could be toxic or harmful, or have other externalities (as so many have accused). Rather, the belief was that socialist China *could* solve those externalities whilst simultaneously promoting production in ways that capitalist countries could not, even while recognizing that it had not yet fully done so due to revisionists in society. Comprehensive utilization of the industrial “three wastes” helped untied this knot, as—by 1970—it was seen as a practice that holistically promoted production *and* eliminated pollution in the same activity.

Another premodern declensionist account, Mark Elvin’s canonical *The Retreat of the Elephants: An Environmental History of China*, showed how over several thousand years of human activity like agricultural expansion and hydrological engineering, much of China’s original environmental riches were gradually eroded by the late imperial period. A consequence of this, Elvin argues, is that both the human and material resources essential for technological and institutional advancements were scarce at a time when the West had just begun its industrial revolution. Elsewhere, Elvin called this situation “the high-level equilibrium trap” wherein the population growth rate matches the rate of economic productivity, such that as productivity increases, so does the population—thereby absorbing the gains in productivity. As the population grew, there was an increase in the labor force, but without corresponding capital investment and technological improvement, the increased labor failed to lead to or incentivize significant economic growth or development.<sup>14</sup>

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a Good Job in Environmental Protection for the Benefit of the Vast People and Future Generations – Speech by Gu Ming at the National Conference on Environmental Protection],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 248–57.

<sup>14</sup> Mark Elvin, *The Retreat of the Elephants: An Environmental History of China* (Yale University Press, 2004).

A shortage of capital, a lack of arable land, and a surplus of labor was very much still the problem facing Mao when he pondered China's socialist construction in the 1950s. Finding ways to raise productivity was thus one his most pressing concerns.<sup>15</sup> Under these circumstances, the early Mao regime sought to make the most out of any and all existing resources by reevaluating and maximizing their "use-value". This perspective reframed waste—from household garbage to industrial byproducts—as not-yet-realized resources that could be reused or recycled to their maximum potential with the appropriate application of the (abundant) human labor. In this way, the Maoist regime aimed to spur productivity and development despite the limiting economic conditions of the 1950s. This dissertation describes how by the early 1970s, this practice of maximizing the "use-value" of waste through reuse and recycling (comprehensive utilization of the industrial "three wastes") was not just about optimizing production, but eventually became associated with an environmentalist consciousness that saw value in reusing industrial waste as the principal way to reduce environmental and public harm.

In this sense, the dissertation also builds on a second, much more recent subfield of Mao era history: the study of the relationship between Maoist material culture, waste recycling practices, and the environment. Historian Joshua Goldstein's *Remains of the Everyday: A Century of Recycling in Beijing* traces how Beijing's waste recycling regime and scrap industry—and state efforts to regulate them—changed over the 20<sup>th</sup> century, across the Republican, Maoist, and post-Mao regimes. Goldstein makes a crucial point about the relationship between the economics of waste reuse and the larger economy during the Mao era that informs my research here. He explained that during the late 1950s there emerged from Maoist collectivization efforts an "idealized socialism" that aimed to squeeze the most utility,

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<sup>15</sup> Kunze and Matten, *Knowledge Production in Mao-Era China: Learning from the Masses*, 190.

satisfaction, or practical use out of a good or commodity (“use-value maximizers”). This was, again, a response to the early Mao regime’s need to find ways to increase production in the face of a surplus of labor and lack of capital. Moreover, in such a system, the focus is not on producing goods for sale (and thereby profit), but on producing goods that serve practical purposes, meet human needs, and contribute to the well-being of society. In the Mao-era socialist ideal, there was therefore no such thing as “garbage.” Instead, garbage was seen as merely “misplaced resources”. This viewpoint essentially reframes what is often perceived as useless or waste material into potentially useful resources that have been incorrectly disposed of or not utilized to their full potential. This led to a system that “sanctified” waste—what he calls “a system of industrialization without disposability.”<sup>16</sup>

While Goldstein looked at urban and household waste in Beijing, here I look at a different kind of waste—the industrial “three wastes” of wastewater, waste gas, and waste solids that were produced by industrial processes. The reuse practices of this kind of waste operated under a similar logic—that even the toxic, harmful byproducts of industrial waste were also just mismanaged or improperly utilized resources of some kind. With the right application of human labor, they could be made productive or even beneficial to society. By extending Goldstein’s ideas about the centrality of waste recycling and use-value maximization to the industrial realm, I explore the relationship of these waste management practices to the development of environmentalism in the Mao era. What interests me most here is the historical process that ultimately made comprehensive utilization not just a use-value maximizing practice, but an

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<sup>16</sup> Joshua Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing* (University of California Press, 2020), 77, 149; I also draw on Adam Liebman’s work about the Marxist materialist notions of waste that see it as a resource to be used rather than discarded and how that related to Maoist understandings of “nature”, see: Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China.”

*environmentalist* practice. And not just any environmentalist practice, but the *essential* Maoist environmentalist practice that sat at the very heart of *huanbao* as it came to being in the early 1970s. I elaborate the answer to this question in chapter 4, where I show that the key triggers for this change were new (global) scientific understandings of the profound and diffuse dangers of industrial pollution to human health and other realms of production inside and outside the factory.

Another theme that emerges from *longue durée* histories of China's environment is the plurality of ways in which Chinese people have conceptualized "nature". Elvin, for example, dedicates a chapter to different personal and institutional views of nature throughout China's premodern past, casting doubt on the notion of a unified Chinese view of nature.<sup>17</sup> Jonathan Schlesinger's *A World Trimmed with Fur: Wild Things, Pristine Places, and the Natural Fringes of Qing Rule* explains how Qing officials "invented" of nature in its borderlands through the Qing management of resources in the empire's borderlands.<sup>18</sup> A *New York Times* interviewer asked Schlesinger whether the "germ" of modern environmentalism could be found in the Qing developments he studied. Schlesinger responded by pointing out that Qing officials did not "justify their positions in terms of the sciences" and nor did they have dedicated environmental organizations. But he noted some similarities in how Qing officials invoked ethnic identity to protect the homelands of the Manchus and the Mongols from environmental degradation—similar to how "many in the German-speaking world saw nature protection as a pathway to redemption for the German 'Volk,' and Americans called for national parks to preserve the

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<sup>17</sup> Elvin, *The Retreat of the Elephants: An Environmental History of China*.

<sup>18</sup> Jonathan Schlesinger, *A World Trimmed with Fur: Wild Things, Pristine Places, and the Natural Fringes of Qing Rule* (Stanford University Press, 2017).

country's national spirit."<sup>19</sup> My dissertation relates to these insofar as it offers a history of the moment when Chinese environmental management *was* finally justified in terms of the sciences and when China began to have dedicated environmental organizations. In this sense, my dissertation highlights the critical moment when China's environmental thought increasingly began to align (partially, not wholly) with the globalization of environmental norms.

## **V. Science, Knowledge Production, and the Chasm of 1978**

In addition to contributing to our understanding of Mao era environmental history, elaborated in the next chapter, this dissertation also contributes to the growing history of Mao era science and knowledge production. This recent scholarship has built on the arguments of historians of science and technology that critique the notion of a single, unified, objective, universal modern science. Instead, they encourage us to recognize the multiplicity of cultural and social contexts within which scientific ideas are conceived, developed, and deployed. They have acknowledged that science is not merely a collection of objective facts and universal laws, but rather, it's a human activity deeply embedded in specific contexts. This framework invigorated study of science and knowledge in the Mao era, a period which had long been treated as a scientific and intellectual dark age by post-Mao writers (and the post-Mao Party itself).

Miriam Gross, for example, studied the successful grassroots medical campaign against snail-fever (schistosomiasis) during the Mao period, exploring how grassroots resistance to the campaign was common and how the campaign served as a mechanism of state power and

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<sup>19</sup> Mike Ives, "How the Qing Court Sowed the Seeds of Environmental Protection in China," *The New York Times*, January 6, 2017, <https://www.nytimes.com/2017/01/06/world/asia/china-manchu-environment-schlesinger.html>.

scientific consolidation, legitimizing the regime and controlling rural areas.<sup>20</sup> The volume *Mr. Science and Chairman Mao's Cultural Revolution: Science and Technology in Modern China* presents a nuanced examination of the Cultural Revolution's impact on science and technology in China, challenging the prevailing belief that it was an unequivocal disaster. Collectively, the authors show that there were areas of science and technology in the Mao era that saw notable activity and progress.<sup>21</sup> *Knowledge Production in Mao-era China* by Rui Kunze and Marc Andre Matten argue that Mao-era knowledge production was “pluralist,” by showing how a variety of practical concerns surrounding a particular practice shaped how knowledge was produced about it. In factories, for example, technological innovations were often built by the cooperation of workers and technicians. They showed also how the creation of what counted as scientific knowledge was a complicated social and political process—for example, the Party's emphasis on peasants and workers meant their “needs, perspectives, as well as their (presumably) experience-based knowledge should contribute to what counted as scientific knowledge and how to disseminate it.”<sup>22</sup>

I also draw from Sigrid Schmalzer's research on the dichotomy of *tu* (indigenous, local, self-reliant) and *yang* (foreign, modern, technological) approaches to science and expertise, on the nature of knowledge production in China in the context the global Cold War, on the Party's emphasis on different social standpoint epistemologies in producing knowledge, on the importance of holistic and integrationist scientific practices, and on the rise of mass and popular

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<sup>20</sup> Miriam Gross, *Farewell to the God of Plague: Chairman Mao's Campaign to Deworm China* (Univ of California Press, 2016).

<sup>21</sup> Chunjuan Nancy Wei and Darryl E. Brock, *Mr. Science and Chairman Mao's Cultural Revolution: Science and Technology in Modern China* (Rowman & Littlefield, 2013).

<sup>22</sup> Rui Kunze and Marc Andre Matten, *Knowledge Production in Mao-Era China: Learning from the Masses* (Lexington Books, 2021), 18.

science during the Cultural Revolution.<sup>23</sup> My dissertation explains how all of these factors shaped how environmental problems and their solutions were articulated in early 1970s China. As an example, there was often tension as to whether solutions to environmental problems ought to be more *tu* and based on worker experiences and factory-level innovations, or more *yang* and based on foreign technological solutions and “experts” in environmental science.

My dissertation builds on this work, most simply, by exploring yet another active realm of scientific activity during the Mao period: the genesis of environmental science in the late Mao period. I situate my study of Mao-era environmentalism within the development of the globalized, interdisciplinary “environmental sciences”. Chinese scientists translated powerful, foreign scientific concepts like “ecology” and “biosphere” throughout the early 1970s, adapting them to broader *huanbao* project. The integrated, interdisciplinary nature of environmental sciences was predicated on the capacious concept of the “environment” itself—an idea in China that, as elsewhere, “absorbed the energies of numerous intellectual and scientific strands in a way that no other concept had the capacity to do.”<sup>24</sup> This same process occurred in late Cultural Revolution China. To see society itself as an organism or an ecological system, for example, one needed to integrate knowledge of biology, chemistry, agriculture, geology, botany, hydraulic engineering—the list goes on. Correspondingly, the development of environmental science

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<sup>23</sup> Sigrid Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China* (University of Chicago Press, 2016); Sigrid Schmalzer, “Red and Expert,” in *Afterlives of Chinese Communism: Political Concepts from Mao to Xi*, ed. Christian Sorace, Ivan Franceschini, and Nicholas Loubere (ANU Press, 2019), 215–20; Schmalzer, Sigrid. “Prometheus and the Fishpond.” *Made in China Journal*, February 17, 2023. <https://madeinchinajournal.com/2022/09/27/prometheus-and-the-fishpond/>; Sigrid Schmalzer, *The People’s Peking Man: Popular Science and Human Identity in Twentieth-Century China* (University of Chicago Press, 2009).

<sup>24</sup> Warde, Robin, and Sörlin, *The Environment: A History of the Idea*, 34-35.



required “interdisciplinary and multifaceted knowledge-making and understanding on many scales.”<sup>25</sup>

At the same time, ideas from environmental sciences were not adopted in the PRC as if they were “objective, portable ‘thing[s]’.”<sup>26</sup> Historian Lynn Nyhart argued compellingly that the distinction between “making” and “moving” knowledge is often superficial: “scientific knowledge changes when moving from one place to another; thus, moving knowledge means, at the very least, re-making it in some ways.”<sup>27</sup> For example, in the context of the late Cultural Revolution, the integration of a vast array of different disciplines and the social implications behind the concept of “the environment” gave it a uniquely liberatory and revolutionary valence. For Chinese scientists, it offered a radical epistemological framework that broke through the confines of their old disciplines, which were then cast as staid, conservative, and ivory-tower disciplines. The famous physicist Qian Weichang (钱伟长) argued this point in a 1974 essay, writing, “Environmental pollution and protection involve various industries and disciplines, making it the most comprehensive and mass-based technological science in human history [人类历史上遇到的最富有综合性的技术科学].”<sup>28</sup> Similarly, in a 1978 essay written while Hua

Guofeng was still Chairman just after Mao’s death, the Vice Chairman of the National Association for Science and Technology and Director of the Scientific Research Institute of the

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<sup>25</sup> Warde, Robin, and Sörlin, *The Environment: A History of the Idea*, 12.

<sup>26</sup> Grace Yen Shen, *Unearthing the Nation: Modern Geology and Nationalism in Republican China* (University of Chicago Press, 2014), 5.

<sup>27</sup> Lynn K. Nyhart, “Historiography of the History of Science,” in *A Companion to the History of Science*, ed. Bernard Lightman (John Wiley & Sons Ltd, 2016), 14.

<sup>28</sup> Weichang Qian 钱伟长, “Zibenzhuyi Guojia de Huanjingwuran 资本主义国家的环境污染 [Pollution in Capitalist Countries],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (1974): 30–35.

Ministry of Railways, Mao Yisheng (茅以升) wrote that *huanjing baohu* was a special science that truly stood out from all other scientific disciplines: it involves “almost all sciences”, the scale of experiments are so large that it requires cooperation with different scientific groups, and it is “closely related to the interests of the people, and thus must be combined with reality.” It was what he called, “a science with great social characteristics.”<sup>29</sup> Because the Cultural Revolution was aimed at the transformation of established institutions, practices, and social relationships, it also provided an especially fertile ground for a holistic, discipline-shattering framework like *huanbao* to take hold. This dissertation thus offers a compelling case study of how new scientific paradigms can emerge amidst—or explicitly because of—political, ideological, and social turbulence.

In addition to all of this, I shed light on the origins of the PRC’s ongoing project today to systematically reform the relationship between humans, the environment, and industry. Ever since its emergence in the late Cultural Revolution, *huanjing baohu* has served as the principal terminology through which the Chinese Party-state and its citizens talk about the environment. The precise interpretations, meanings, and applications of *huanjing baohu* have undeniably shifted in the decades following Mao’s death, with each new political regime massaging the concept to better serve its specific goals and objectives. In 1978, for example, “protecting the environment” was written into the PRC’s constitution for the first time, marking the beginning of a bureaucratic, regulatory, and legal environmental regime that eschewed Maoist environmentalist approaches. Today, an integral component of Xi Jinping’s vision for the national rejuvenation of China is the transformation of the country into an “ecological

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<sup>29</sup> Mao Yisheng 茅以升, “Kexuejia Tan Huanjing Baohu 科学家谈环境保护 [Scientists Talk Environmental Protection],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 5 (October 1978): 2.

civilization”, based on Xi’s assertion that “The ecological environment is a major political issue related to the Party’s mission and purpose.”<sup>30</sup> Indeed, the actual term itself, *huanjing baohu*, and the (often) rhetorical commitment to the project behind it has remained constant.

In this sense, the dissertation adds weight to a historiographical trend that questions the supposed chasm of the 1978 transition to Deng Xiaoping. Such scholarship increasingly finds the roots of post-1978 reforms in developments of the early 1970s, showing the extent to which that year is a more permeable boundary than is conventionally treated. Joshua Eisenman, for example, finds in *Red China’s Green Revolution* that the commune reforms that began in 1970 were agriculturally quite productive and helped lay important foundations for post-Mao China’s economic growth. Population increased and other markers of well-being improved, like life expectancy, literacy, and vocational education.<sup>31</sup> Rui Kunze and Marc Andre Matten make a similar argument that the presupposition of an “epistemic rupture” in the Deng transition in 1978, often praised for reinstating scientific autonomy and promoting it as a chief productive force, has a tendency to obscure the persistent influence of science and technology ideologies from the Mao era into today.<sup>32</sup> This dissertation shows that this same case can be made about the continuities of an environmental consciousness within the public and the Party-state, the establishment of a new category of environmental sciences, and China’s national “environment” becoming a permanent object of state governance.

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<sup>30</sup> Robert Lawrence Kuhn, “Xi Jinping Thought on Ecological Civilization,” CGTN, October 13, 2022, <https://news.cgtn.com/news/2022-10-13/Xi-Jinping-Thought-on-Ecological-Civilization-1e67MN6IvxC/index.html>.

<sup>31</sup> See for example, Joshua Eisenman, *Red China’s Green Revolution: Technological Innovation, Institutional Change, and Economic Development Under the Commune*, 2018. Sigrid Schmalzer also argues for recognizing the important agricultural research developments in Mao-era China, see: Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China*.

<sup>32</sup> Kunze and Matten, *Knowledge Production in Mao-Era China: Learning from the Masses*, 194.

Lastly, that these changes also began in 1970 lends another reason to think about the Cultural Revolution not as a single continuous event spanning 1966-1976, but as occurring in two parts: the more violent, chaotic, and factional 1966-1969 and then the 1970-1976 period, after Mao insisted the Cultural Revolution was over in 1969. The twist is that the people who created *huanbao* universally said it was a program of the Cultural Revolution—showing how this latter period was more aimed at transforming society not through conflict but through the creation and dissemination of new knowledges and consciousness. Accomplishing all of this will not just challenge established narratives and complicate our understanding of China’s environmental history or our assumptions about knowledge production in the Cultural Revolution. It will also write the Chinese experience—that is, the experience of fifth of humanity—into the global history of environmentalism.

## **VI. *Huanbao* or “Environmental Protection”?**

As a final introductory note, I want to underline that much like how Ruth Rogaski opted to use *weisheng* (“hygiene”) untranslated in her book *Hygienic Modernity*, I prefer the terms *huanbao* or *huanjing baohu* instead of “environmental protection”. Though the latter is a direct and commonly used English translation, it has several disadvantages. One, it encourages projecting backwards in time contemporary formulations of “environmental protection”. Contemporary notions of what constitutes “environmental protection” today were historically constructed, despite the fact that it has become a remarkably intuitive and almost self-evident set of ideas to us. So that readers do not have to remind themselves of this fact each time they read the term, I generally try to avoid it when discussing the Maoist environmentalist project in the 1970s.

Two, “environmental protection” is, on its face, a misnomer for the types of activities that were tied together under the category of *huanbao* in this period. Despite what the term implies, those doing *huanbao* activities did not see the “environment” in and of itself as the main object that needed to be “protected.” Rather, it was focused on the social and material factors that influenced *human* living standards. Using “environmental protection” to refer to this risks misrepresenting the logic and values that upheld the project at its point of formation. *Huanbao* was not initially about protecting the health and resilience of natural systems. Though there were efforts from Chinese scholars in disciplines like geochemistry and forestry to bring translated ideas like “ecology” and “biosphere” into the *huanbao* project, these took time to percolate in. Regardless, like Rogaski’s *weisheng*, leaving *huanbao* untranslated helps capture how the term was “a vessel into which numerous meanings [we]re poured.”<sup>33</sup>

Explicit, textbook definitions of *huanjing baohu* by Chinese environmental theorists and practitioners were uncommon. Thinking about the term in its predicate form—to *baohu huanjing* (to protect the environment)—helps capture its multilayered and context-specific meanings. In different contexts, it could mean treating the “three wastes” within a factory, healing the medical effects of pollution, comprehensively utilizing industrial materials, protecting agricultural land from natural disasters, inventing new industrial devices that produced less pollution, testing water, soil, and air for chemicals, holistic urban and industrial planning, planting trees, learning environmental idiomatic and folk knowledge from the masses, educating the masses, and so on. According to my analysis, *huanbao* during and following the 1973 NCEP can be distilled down into five different layers.

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<sup>33</sup> Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (Univ of California Press, 2004), 15.

1. An interdisciplinary field of science: *Huanbao* integrated knowledge and practices from various scientific disciplines to understand and address environmental problems. This included medicine, geochemistry, forestry, botany, industrial engineering, and agriculture, among others. This interdisciplinary feature also characterized the development of environmental science around the world and was a key part of its appeal in China during the Cultural Revolution.
2. A set of holistic production practices: *Huanbao* was built on preexisting practices supporting the reuse of industrial waste, especially “comprehensive utilization”.
3. An epistemic structure: *Huanbao* knowledge and practice was predicated on the systematic integration of different social and class perspectives on environmental problems, namely those of workers, peasants, experts, and cadres. The Chinese Party-state assumed responsibility for organizing and managing these efforts, thereby making “the environment” a central agenda and domain of governance.
4. A public discourse: Through print media and other public communication forms, *huanbao* shaped public perception of environmental issues, telling stories of environmental protection activities, spreading and adding to the terms and concepts behind *huanbao*, and promoting the value of a clean environment.
5. A revolutionary idea: *Huanbao* reflected the ideological fervor of the Cultural Revolution, viewing environmental problems as symptomatic of broader societal, economic, and political systems. It sought a revolutionary approach to environmental problems, underpinned by Maoist principles like self-reliance, interdisciplinary science, holistic systems of production, and non-expert epistemologies.

Another frequently used term to describe the variety of problems caused by industrial development was “public hazard” or *gonghai*. As I briefly cover in chapter two, the term “public hazard” emerged sometime in 1971 and grew especially popular after the summer 1972 translation of a popular Japanese book about industrial pollution and environmental problems that referred to Japan as a “public hazard archipelago” (公害列島). “Public hazard” poses fewer problems in translation. It does not carry the same retrospective baggage as “environmental protection” and, in many ways, actually more accurately reflected the anthropocentric values behind Maoist approaches to the human-nature relationship. Maoist theorists were indeed much more concerned with “hazards to the public” than they were with “protecting the environment.” It would not be farfetched to imagine that the August 1973 National Conference on Environmental Protection might have been called instead the National Conference on Public Hazards. As such, I do not hesitate to leave “public hazard” untranslated.

## CHAPTER 1 - Literature Review

### I. The Environment under Mao

After the political transition to Deng Xiaoping in 1978, Chinese officials, scientists, and historians constructed a critique of the Mao period's governance of the environment as equal parts catastrophic and ignorant. This charge paralleled similar critiques Dengist reformers made about the Mao period's devastating impact on China's politics, economics, education, culture, ethnic relations, and so on. Setting the agenda for their Western counterparts, Chinese scholars have long blamed the "far-left ideology" of the Great Leap Forward and the Cultural Revolution for causing "significant damage" to the environment.<sup>34</sup>

These post-Mao Chinese accounts like to describe how China's leadership (and societal beliefs more broadly) under Mao erroneously believed that industrial pollution was *only* a problem of capitalist countries. According to this belief, China's socialist system was designed to "satisfy the needs of the masses" and so, ipso facto, could not damage the interests of the masses. Profit-oriented capitalist systems, on the other hand, could ignore "environmental destruction regardless of the welfare of workers and peasants" so long as they continued to receive profit.<sup>35</sup> Evidence of environmental problems in the "revisionist" Soviet Union only further proved the theory that where deviation from the appropriate interpretation of socialism went, so too did ecological degradation and pollution. Qu Geping helped establish this narrative as early as 1981:

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<sup>34</sup> Wang Xi王茜, "中国生态外交实践的序幕: 历史回顾与影响 [The Prologue to China's Ecological Diplomacy: Historical Review and Impact]," *党史研究与教学* [Party History Research and Teaching], June 2012, 12.

<sup>35</sup> Maohong Bao, "The Evolution of Environmental Policy and its Impact in the People's Republic of China," *Conservation and Society*, 4, no.1 (2006), 38.



It is sad when a person is seriously ill and does not realize it himself, but laughs at others who are ill. There is a similar understanding of our environmental pollution and destruction. In the late 1960s and early 1970s, when we arrogantly commented that environmental hazards in the Western world were “incurable diseases”, environmental pollution and destruction were developing and spreading rapidly in our country. However, we were not aware of them. And even if we were somewhat aware of them, we considered them to be minor, and they were completely different from those in the West. Because, according to the far-left theory of the time, a socialist system could not produce pollution. Anyone who says there is pollution or public harm will give socialism a bad name. In a political climate that allowed only praise, not criticism, songs of a clean and beautiful environment inebriated the people.<sup>36</sup>

In a later 1997 essay, Qu restated this same basic story again, writing:

In the early 1970s, the Cultural Revolution was going on brutally, the national economy was on the verge of collapse, and the land of China was in chaos...It was at this time that the Chinese government decided to send a delegation to the United Nations Conference on the Human Environment [UNCHE] held in Stockholm on June 5, 1972. This was beyond the imagination of ordinary people and surprised the international community.<sup>37</sup>

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<sup>36</sup> Qu Geping 曲格平, *Zhongguo huanjgin wenti ji duice 中国环境问题及对策 [China's Environmental Problems and Countermeasures]* (中国环境科学出版社 [China Environmental Science Press], 1984), 109.

<sup>37</sup> Qu Geping 曲格平, “Huiyi Zhou Enlai Zonglli Dui Huanjing Baohu Shiye de Zhichi He guanhuai 回忆周恩来总理对环境保护事业的支持和关怀 [Recalling Premier Zhou Enlai's Support and Care for Environmental Protection].” In *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, edited by Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 472–77.

Historian Yang Wenli summarized the long afterlife of this post-Mao consensus nicely when he wrote in a 2008 article,

[D]ue to the influence of extreme “left” ideology, there was a refusal to acknowledge environmental pollution under the socialist system. It was believed that such pollution was a product of capitalist societies and a chronic ailment of capitalist countries. Anyone who claimed that China had pollution issues was seen as tarnishing the reputation of socialism.<sup>38</sup>

Western scholars assessing the environment under Mao have largely followed these post-Mao assessments of the Mao period. In the West, it has become nearly a ritual trope to point out how Maoist high-modernist beliefs about man controlling and dominating nature combined with mass mobilization and dogmatic ideology to environmentally catastrophic effect.

The historian and geographer Rhoads Murphey, writing in 1967, was one of the earliest Western observers to describe Mao’s “war on nature” as a fundamental aspect of the PRC’s revolutionary program after 1949. Murphey saw in Mao’s thought a “revolution in the conception of man’s relation to his physical environment.” He viewed new revolutionary attitude to the environment as a reflection of the dialectical conflict which defined Mao’s “permanent revolution.”<sup>39</sup> Mao’s ultimate national developmentalist goal of closing of the gap between China and the West also required the “universal mobilization of energies” in transforming nature and bending it to his industrial goals.<sup>40</sup> Consequently, nature was something to be “defied” and

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<sup>38</sup> Yang Wenli 杨文利, “Zhou Enlai Yu Zhongguo Huanjing Baohu Gongzuo de Qibu 周恩来与中国环境保护工作的起步 [Zhou Enlai and the Beginning of China’s Environmental Protection Work],” *Dangdai Zhongguoshi Yanjiu 当代中国史研究 [Contemporary China History Studies]* 15, no. 3 (May 2008).

<sup>39</sup> Rhoads Murphey, “Man and Nature in China,” *Modern Asian Studies* 1, no. 4 (July 1967), 314.

<sup>40</sup> Murphey, “Man and Nature in China,” 321.

“conquered”. Murphey drew these conclusions from Chinese newspaper articles with titles like “The Desert Surrenders” or “We Bend Nature to Our Will” or “The United Will of the People can Transform Nature.” Likewise, challenging landscape features—mountains, rivers, deserts—were personalized as an “almost living opponent” that needed to be defeated, as if China’s humanity was engaged in a military battle with nature itself. According to Rhoads, this was revolutionary insofar as it displaced traditional Chinese views of nature which were marked by “adjustment” and “harmony” with nature.<sup>41</sup>

Later, in 1982, Vaclav Smil’s *The Bad Earth* undermined the then-dominant sanguine narratives about China’s environment in the West. These narratives, influenced more by propaganda than experiences in China that were hard to come by, emphasized 1949 as a revolutionary, positive turning point in China’s poor environmental state:

During the early and mid-1970s, newspaper, magazine, and television reporting, numerous China travelogs and, unfortunately, not a few papers in scholarly journals created a twofold impression of the Chinese environment in Western minds. The one was of pre-1949 China—dirty and desolate, with barren hills and spreading deforestation, poor farming practices, low crop yields, and widespread soil erosion; with congested, ugly cities and primitive, polluting industries. The other was a Maoist miracle—clean and cheerful, with green hills and massive afforestation, ever-improving farming techniques and rising yields, soil erosion well under control, cities lightened by broad, tree-lined boulevards, and industries carefully preserving pure air and water...Chinese policies, we

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<sup>41</sup> Murphey, “Man and Nature in China,” 319.

were assured, “seem to have been successful in protecting and even improving the natural environment.”<sup>42</sup>

Describing these narratives as “embarrassingly misinformed,” Smil provided a broad overview of China’s environmental precarity after the Mao period, documenting widespread deforestation, soil erosion, loss of arable land, and industrial pollution. He situated this within China’s longer, “millennia-old course of environmental degradation” involving “deforestation, erosion, desertification, and losses of cropland” that Mao had merely intensified after 1949. Though the book is more an empirical assessment of China’s state of nature in the late 1970s and early 1980s, Smil also alluded to ecological damage caused by “deliberate” and “irrational” policies during the Mao period. He underlined 1978, the year Deng Xiaoping ascended as China’s top leader, as a watershed moment wherein a “truly stunning” amount of information about environmental problems was finally countenanced by the Chinese Party-state and opened for discussion.<sup>43</sup> “For a variety of reasons,” he wrote, Beijing’s new post-Mao leadership had “decided to unveil unprecedented doses of truth about the country’s state of affairs...the resulting image of China’s environment is very disquieting.”<sup>44</sup>

However, it was Judith Shapiro’s much-cited 2001 book *Mao’s War against Nature* that connected Mao’s revolutionary, militarized framing of the relationship between humans and nature with the empirical facts of China’s degraded national ecology more publicly observed in the late 1970s and early 1980s. In it, Shapiro argued that the Maoist dichotomous and “adversarial stance” toward the relationship between humans and nature was ecologically

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<sup>42</sup> Vaclav Smil, *The Bad Earth: Environmental Degradation in China*, (Zed Press, 1984), xi-xii.

<sup>43</sup> Smil, *The Bad Earth: Environmental Degradation in China*, 9.

<sup>44</sup> Smil, *The Bad Earth: Environmental Degradation in China*, xii.

catastrophic for the PRC under Mao.<sup>45</sup> “Maoist ideology,” she claimed, “pitted the people against the natural environment in a fierce struggle.” She argued that Mao ignored warnings on explosive population growth, widespread deforestation, and overuse and misuse of land led to massive famine in the 1960s. Local practices were disregarded as Mao demanded the uniform application across China of questionable policies, such as the forced growing of grain no matter the local conditions. She also emphasized how Maoist military imagery and language formulated a “war against nature” in which China’s entire society was to be mobilized.<sup>46</sup>

The hegemony of this narrative can be seen in the bulk of subsequent popular and academic writing on the topic, which tend to see nothing progressive or even remorseful about attitudes toward nature in China under Mao. For example, in *The River Runs Black: The Environmental Challenge to China's Future* (2004), Elizabeth Economy provided an overview of the environmental problems wrought by the massive economic growth of the 1980s-2000s. Her account stressed the environmental destruction of the Great Leap Forward and the Cultural Revolution, noting that the human and social devastation of those periods was accompanied by an equally catastrophic ecological devastation.<sup>47</sup> “Few strides were made in advancing environmental protection regulations during the decades of Mao’s rule,” she wrote, preferring to emphasize the catastrophic consequences of Mao’s grandiose and utopian visions for a modern, industrialized socialist China.<sup>48</sup> Maohong Bao, a Chinese environmental historian sometimes writing in English, wrote similarly that the “mammoth socialist movement” Mao began in China

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<sup>45</sup> Judith Shapiro, *Mao's War Against Nature: Politics and the Environment in Revolutionary China* (Studies in Environment and History) (Cambridge University Press, 2001), 3.

<sup>46</sup> Shapiro, *Mao's War Against Nature: Politics and the Environment in Revolutionary China*, 3-4.

<sup>47</sup> Elizabeth Economy, *The River Runs Black: The Environmental Challenge to China's Future* (Cornell University Press, 2010), 67.

<sup>48</sup> Economy, *The River Runs Black: The Environmental Challenge to China's Future*, 59-60.

in 1949 “violated nature and resulted in serious environmental pollution and ecological damage. Since China’s leadership purported to employ the mechanism of unified planning with due consideration for all aspects of the economy and the society, which was supposedly more superior than in a capitalism system, the Chinese government did not recognize environmental problems.”<sup>49</sup>

There have been a few limited correctives against this dominant narrative. Two years after *Mao’s War against Nature* was published in 2001, Peter Ho pushed back against the tendency for both Chinese and Western scholars to characterize the Mao period “*solely* in negative terms.” He argued against the dominant “overly negative” interpretations of the collectivist period (1956-1978) that saw the Grain-first campaign—wherein the state called for massive grain cultivation in places not suitable to it—as having led to degradation of China’s farmland, steppe, and forests. In his sources, Ho found that the Grain-first movement had in later literature been “misrepresented,” and was not “as lopsidedly geared to grain self-sufficiency through land reclamation instead of integrated agricultural development” as post-Mao sources portrayed it.<sup>50</sup>

Other, more recent publications have continued to complicate what they critique as the oversimplified, declensionist narrative of the Mao-era environment. They have shown that there were also environmentally-aware dimensions of the Mao era and to Maoist politics that coexisted alongside the already well-documented high-modernist ecological destruction. For example, Elena Songster has shown that during the height of the Cultural Revolution (1967-1969) there

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<sup>49</sup> Bao, “The Evolution of Environmental Policy and its Impact in the People’s Republic of China,” 37-38.

<sup>50</sup> Peter Ho, “Mao’s War against Nature? The Environmental Impact of the Grain-First Campaign in China,” *The China Journal* 50 (July 2003), 58.

were organized scientific efforts to preserve panda habitats.<sup>51</sup> Likewise, Cheng Li and Yanjun Liu argued that forestry officials and scientists adopted “scientific, rational, and even constructive” attitudes toward the planting of trees. For example, forestry officials like Liang Xi believed that the planting of trees along the Yellow River could solve the “chronic problems related to managing” the river, especially flooding. This allowed them to conclude that, “A more comprehensive look at tree planting in the early years of the PRC reveals that environmental discourse during the Mao era contains significant elements that are scientific, calculated, and even constructive.”<sup>52</sup> After researching recycling and urban waste management in the Mao period, Joshua Goldstein described his own assessment of the Mao era treatment of the environment as “ambivalent edging toward critical,” noting that the Mao era state was certainly not a “leading light of environmental protection.” However, he balanced the conventional points about the Mao period’s waste of resources, deforestation, uncontrolled industrial emissions, and “denials that industrial pollution even existed” with evidence that when the Party-state incorporated local knowledge and experience into campaigns, environmental conditions were often taken into account.<sup>53</sup>

The point in some of these is not so much to uncover how or whether there ever developed a distinct, revolutionary Maoist environmentalist ethic, but rather to find grains of scientific rationalism amidst the wider chaff of Maoist irrationality or to just find some evidence that “things weren’t all bad”. This dissertation departs from these in that it does not just look for

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<sup>51</sup> Elena Songster, *Panda Nation: The Construction and Conservation of China’s Modern Icon* (Oxford University Press, 2018).

<sup>52</sup> Cheng Li and Yanjun Liu, “Selling Forestry Revolution: The Rhetoric of Afforestation in Socialist China, 1949–61,” *Environmental History* 25, no. 1 (January 1, 2020), 64-65.

<sup>53</sup> Joshua Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing* (University of California Press, 2020), 16. Goldstein cites Schmalzer’s *Red Revolution, Green Revolution* as also helping to lead him to this conclusion.

an anomalous or prescient manifestation of contemporary attitudes towards science and environmental, but instead shows how Maoism developed its own logic of environmentalism in the early 1970s. It acknowledges that while the Maoist approach to environmentalism may have been different from the expert-driven, scientific paradigm that characterized the Dengist period, it was a meaningful and influential expression of environmental concern in its own right.

## **II. The Cadre and the Conference**

### *Zhou Enlai's Awakening*

To the extent that post-Mao Chinese and Anglophone accounts recognize China's environmentalist turn in the early 1970s, they do so obliquely, through the mythic personage of Zhou Enlai or gestures to the June 1972 first United Nations Conference on the Human Environment (UNCHE) in Stockholm. In the context of the declensionist environmental narrative about the Cultural Revolution, these are unstable facts. There are two ways that scholars have tried to account for them. One, most common in Chinese accounts, is to depict Zhou Enlai as the only figure willing to stand as a bulwark against the radical Maoists and insist that China too could have environmental problems. Qu Geping tells this Zhou-centered story:

It was all a far-sighted decision by Premier Zhou Enlai, who saw the potential threat of environmental problems and asked those close-minded Chinese to go out and see the world in order to better plan China's development. At the time, China was ruled by a far-



left line that turned a blind eye to the country's economic backwardness and spreading environmental problems.<sup>54</sup>

Chinese historian Ren Junhong likewise places Zhou at the center of China's environmental awakening:

[A]t that time, the whole country was in the midst of the "Cultural Revolution," and for most people, the term environmental protection was still very strange. In particular, according to the theory of the extreme left line at that time, the socialist system could not possibly produce pollution. Whoever said there was pollution, smeared socialism. At that time, the severe environmental situation urgently required Chinese society to change people's neglect of the environment and improve people's environmental awareness. This is what Zhou Enlai was actively trying to do.<sup>55</sup>

Historian Yang Wenli tells a similar story:

Zhou Enlai, as the first Premier of New China, made significant contributions to our socialist construction and the inception of environmental protection work, which cannot be separated from his care and emphasis. Zhou Enlai was the first to realize the importance of environmental protection work. He clearly pointed out that with the development of our country's industrial construction, we will also face industrial pollution problems...Especially commendable is that during the Cultural Revolution,

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<sup>54</sup> Qu Geping 曲格平, "Huiyi Zhou Enlai Zongli Dui Huanjing Baohu Shiye de Zhichi He guanhuai 回忆周恩来总理对环境保护事业的支持和关怀 [Recalling Premier Zhou Enlai's Support and Care for Environmental Protection]," 472-77.

<sup>55</sup> Ren Junhong 任俊宏, "Zhou Enlai tuidong zhongguo canjia diyici renlei huanjing huiyi shulun 周恩来推动中国参加第一次人类环境会议述论 [On Zhou Enlai's Promotion of China's Participation in the First Conference on Human Environment]," *历史教学问题* [Problems in Teaching History], June 2013, 102-5.

when people were deeply influenced by extreme “leftist” thinking, he still boldly proposed that socialism also has pollution problems, and we must face existing problems and solve them...Zhou Enlai deserves to be the pioneer and leader of environmental protection work.<sup>56</sup>

In these stories, Zhou Enlai’s success in building a broader recognition that environmental degradation and industrial pollution were in fact problems was accomplished *in spite of* the high tide of Maoism during the Cultural Revolution. Indeed, according to Qu, “In the political climate of the ‘Cultural Revolution’, it is a miracle that the environmental protection conference was held and allowed to expose the ‘dark side of socialism’, thanks to the support of Premier Zhou Enlai. At that time, the Gang of Four were busy seizing power and did not come out to oppose or obstruct. They did not care about environmental protection.” In this way, developments before 1978 are diminished: Zhou Enlai identified problems as early as 1970 or so, but nothing was seriously able to be done until the transition to Deng in 1978.

Stories of how, exactly, Zhou himself became aware of environmental problems vary. Qu suggests it was the result of a conversation Zhou had with Japanese schoolchildren about pollution in Japan, linking their descriptions of pollution he heard about with similar incidences in China.<sup>57</sup> Ren thinks, maybe, it was when Zhou read Richard Nixon’s inaugural speech in 1969

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<sup>56</sup> Yang Wenli 杨文利, “Zhou Enlai Yu Zhongguo Huanjing Baohu Gongzuo de Qibu 周恩来与中国环境保护工作的起步 [Zhou Enlai and the Beginning of China’s Environmental Protection Work].”

<sup>57</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Speeches and Talks on Environmental Protection],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 463.

wherein Nixon mentioned that Americans must “protect the environment.” Apparently, this term “protect our environment” struck Zhou as odd, having never heard it before. He subsequently instructed the Research Bureau of the Investigation Department of the CCP Central Committee to comb over foreign magazines, books, and newspapers that mentioned the term “environmental protection” and translate what they found.<sup>58</sup> Regardless of which anecdote was Zhou’s real epiphanic moment, it certainly appears to be the case that Zhou played an early role in raising awareness of China’s environmental problems and need to do something about them. But as this dissertation will show, he was hardly alone and the development of a Chinese environmentalism in this period cannot be simply reduced to Zhou’s prophecy and the Dengist reformers fulfillment of it.

### *The Significance of Stockholm*

The other conventional turning point in official narratives of environmental protection in China is the June 1972 first United Nations Conference on the Human Environment (UNCHE), hosted by the Swedish government in Stockholm. This conference-centered narrative appears often in official post-Mao histories and Anglophone accounts. In this narrative, it is the external stimulus of the UNCHE that awakened China’s environmental awareness. For example, *China Dialogue*, an independent environmental NGO based in London and Beijing, called the 1972 Stockholm Conference the “start of China’s environmental journey” and the “seed of post-Cultural Revolution environmental efforts.”<sup>59</sup> Likewise, Maohong Bao asserted that Maoist

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<sup>58</sup> Ren 任, “Zhou Enlai tuidong zhongguo canjia diyici renlei huanjing huiyi shulun周恩来推动中国参加第一次人类环境会议述论 [On Zhou Enlai’s Promotion of China’s Participation in the First Conference on Human Environment],” 103.

<sup>59</sup> Tianjie Ma, “1972: The Start of China’s Environmental Journey,” *China Dialogue*, December 7, 2021, <https://chinadialogue.net/en/nature/stockholm-1972-chinas-environmental-journey/>.

extremism made China blind to environmental problems until things “changed in 1972,” citing the UNCHE, China’s greater opening to the West and Japan in the early 1970s, and high-profile incidences of pollution.<sup>60</sup> An essay by Xie Zhenhua, China’s Special Representative for Climate Change Affairs, showed how the official Party-state narrative aligns with this chronology and the significance of 1972:

Officially starting in 1972, China’s ecological and environmental protection has a history of 47 years round...Before 1972, environmental pollution had already occurred in many regions, but in our country people always believed that no environmental pollution existed in socialist countries, and industrial pollution was only the result of the capitalism.<sup>61</sup>

Similarly, Richard Louis Edmonds, a well-known authority on China’s environmental policies, emphasized the starkly dichotomous environments of the Mao and Deng periods, yet still emphasizing the 1972 UNCHE:

...the whole of the Maoist period with its political repression, appeal to utopian extremes, dogmatic uniformity and forced relocations of large numbers of people was a highly destructive era for China’s environment. In particular, the 1960s and early 1970s saw a virtual halt to scientific work throughout the country as radical politics led to a political and social meltdown. Outsiders tended to make environmental statements based on their political views of official Chinese writings of the time, often seeing China’s environment through very red rose-coloured glasses. During the early years of the post-1978 opening

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<sup>60</sup> Bao, “The Evolution of Environmental Policy and its Impact in the People’s Republic of China,” 38.

<sup>61</sup> Xie, “China’s Historical Evolution of Environmental Protection along with the Forty Years’ Reform and Opening-Up,” 1-2.

and reform period, increased contact and information from outside led to gradual change in the study of, and policies towards, the environment in China. The 1972 Conference on the Human Environment held in Stockholm was a crucial point in the development of China's environmental policy and its interchange with the international community... From this point on, organisation of China's environmental bureaucracy began to change.<sup>62</sup>

Economist Richard Sanders' 1999 account noted the "turn of mood" about the environment in China following the 1972 UNCHE, yet still condemned the Mao period at large for the ecological degradation it caused:

...to the extent that Mao presided over a political economy which prioritised the collective over the individual and the public over the private yet was so careless in maintaining the 'public good' of a clean and undegraded environment, the environmental legacy of his years in high office is a pretty sorry one.<sup>63</sup>

This story has also driven generalists' accounts. Robert Falkner, a scholar of global environmental politics, cited China specialists in his book about global environmentalism, writing that it was the UNCHE that importantly initiated government efforts to "establish an environmental policy competence," while simultaneously claiming that the "profound political

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<sup>62</sup> Richard Louis Edmonds, "The Evolution of Environmental Policy in the People's Republic of China," *Journal of Current Chinese Affairs* 40, no. 3 (November 7, 2011): 15-16.

<sup>63</sup> Richard Sanders, "The Political Economy of Chinese Environmental Protection: Lessons of the Mao and Deng Years," *Third World Quarterly*, (December 1, 1999): 1204-1206.

turmoil and economic upheaval” of China’s domestic politics meant that environmental policy did not make progress.<sup>64</sup> This is also why one will encounter contradictory stories, like:

Although the view that environmental problems could not occur in socialist states was still dominant in the late period of the Cultural Revolution, official delegates were sent to the UN Conference on the Human Environment in Stockholm in 1972 at the initiative of Premier Zhou Enlei [sic], who was anxious about the seriousness of environmental deterioration in China. This event pushed environmental policy development forward at the First National Conference of Environmental Protection in 1973. The Third Plenum of the Eleventh Central Committee of the Chinese Communist Party (CCP) held in December 1978 was known as an epoch launching the reform and open-door policy that spread environmental policy nationwide.<sup>65</sup>

How is it, one wonders, that a National Conference of Environmental Protection could be held at a time when the dominant view in China was still that “environmental problems could not occur in socialist states”?

The twist here is that, when read closely, these UNCHE-centric narratives are in actuality 1978-centric narratives—evident also in the block quote just above. In none of these accounts is there an explanation as to what the significance of the UNCHE (much less the NCEP) was—beyond a vague gesture that it initiated something or that it was a turning point of a sort, without explaining what that means exactly. Instead, the narratives skip straight to the Third Plenary

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<sup>64</sup> Robert Falkner, *Environmentalism and Global International Society* (Cambridge University Press, 2021), 140-141.

<sup>65</sup> Kenji Otsuka, “Developing Environment and Health Policy in China,” *Journal of Contemporary East Asia Studies*, January 2016, 28.

Session of the Eleventh Central Committee in 1978 as the real watershed event—the moment that “ecological and environmental protection was brought on the right track.”<sup>66</sup>

As a result, the UNCHE is simultaneously imbued with both a special kind of significance and a special kind of insignificance. The effect is that the early 1970s appear as a false dawn, giving the sense that little of importance happened until the political transition to Deng, which is itself defined by that regime’s quickness to implement a litany of environmental laws, regulations, and bureaucracies. Richard Sanders, for example, contrasted the regulatory and bureaucratic inactivity that followed the 1972 UNCHE with the “welter of official activity and policy pronouncements with regard to environmental protection [that] characterize[d] the years of Deng Xiaoping”—following it with a list of the various environmental bureaus and laws that Deng established.<sup>67</sup> Environmental studies scholar Abigail Jahiel wrote in 1997, “Although China began to address environmental questions several years before the reforms, attention to environmental problems increased dramatically after Deng Xiaoping came to power in the late 1970s.”<sup>68</sup> Her chronology in a 1998 article is quite right, though it downplays the NCEP and does not ask about non-bureaucratic or regulatory environmentalist activity:

National environmental protection efforts in China have their origins in the months just prior to and following the 1972 United Nations-sponsored Stockholm Conference on the Human Environment. During the 1970s relatively few steps were taken to establish an environmental protection organizational network...With the advent of the reforms in the

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<sup>66</sup> Xie, “China’s Historical Evolution of Environmental Protection along with the Forty Years’ Reform and Opening-Up,” 1-2.

<sup>67</sup> Richard Sanders, “The Political Economy of Chinese Environmental Protection: Lessons of the Mao and Deng Years,” *Third World Quarterly*, (December 1, 1999): 1204-1206.

<sup>68</sup> Abigail R. Jahiel, “The Contradictory Impact of Reform on Environmental Protection in China,” *The China Quarterly* 149 (March 1, 1997): 82.

late 1970s, attention to environmental issues increased notably. The promulgation of China's first Environmental Protection Law in 1979 signaled a new level of central government interest in environmental matters.<sup>69</sup>

German economist Bernhard Glaeser wrote in 1990, "In the early 1970s, still during the Cultural Revolution, there was a definite change in environmental attitudes and policy," though apparently not much else could be said about it, as he had to guess that this was "*probably* [my emphasis] influenced by discussions in the West such as the 'limits to growth' debate." To Glaeser this was no matter—"The era following Deng Xiaoping's (second) rehabilitation after 1978 was characterised by the opening up of information and a more pragmatic, non-Maoist approach to development," and as such, it was only then when things really progressed: "[a]n environmental protection clause was added to the Constitution, making protection of the environment a governmental obligation. Then in 1979 the Fifth National People's Congress adopted the Environmental Protection Law of the People's Republic of China for trial implementation."<sup>70</sup>

There remains a magnetic relationship between the beginning of environmental protection in China and Deng Xiaoping's broader reforms. Dengist reformers have purposely downplayed the nascent Maoist environmentalism that I am interested in here. More specifically, by defining Dengist approaches to environmental governance—legalistic, regulatory, bureaucratic, and articulated in a global scientific language—as the only real *huanbao*, they wipe the chalkboard of

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<sup>69</sup> Abigail R. Jahiel, "The Organization of Environmental Protection in China," *The China Quarterly* 156 (December 1, 1998): 767.

<sup>70</sup> Bernhard Glaeser, "The Environmental Impact of Economic Development: Problems and Policies," in *The Geography of Contemporary China: The Impact of Deng Xiaoping's Decade*, ed. Terry Cannon and Alan Jenkins (Routledge, 1990), 251.



environmental protection's historical construction. Does it mean anything that it was first during the Mao years that such a conversation about what Richard Sanders called the "public good of a clean and undegraded environment" even took place?

### III. The Global Environmental Turn

In his book *Environmentalism: A Global History*, Indian historian and environmentalist Rachandra Guha argued for understanding global environmentalism as originating from two "waves" in the way people thought about the environment. Guha locates the first in the "intellectual concern for the protection or conservation of nature [that] goes back at least to the last decades of the eighteenth century." This first wave of environmentalism, Guha argues, developed in step with the Industrial Revolution beginning around 1860 and mostly targeted governments in North America and Europe. It was at its core, a response to "the emergence and impact of industrial society." Forest conservation, wilderness preservation, water conservation, and national parks were some of the important outgrowths. This wave was also importantly defined by the sense that humans did not just face specific environmental *problems*, but instead faced an environmental *crisis*.

In Guha's periodization, this first wave lasted until 1962, when the publication of Rachel Carson's *Silent Spring* began the second wave. Rachel Carson's 1962 investigation of how synthetic pesticides damaged the environment in *Silent Spring* is indeed often recognized as the catalytic moment in the creation of a popular environmental movement in the Western world. Warde and Sörlin point out that Carson's *Silent Spring* borrows the literary mode pioneered by Vogt in 1948 that employed fictionalized accounts of damage caused by pollution in order to

impassion the reader.<sup>71</sup> Carson's work though also provided scientific results that showed how pesticides were not only killing off valuable and beneficial species, such as birds and other wildlife, but were also damaging the entire ecosystem and humans. The book's impact was so great that President John F. Kennedy himself asked for a scientific review of the issues raised by Carson.<sup>72</sup> Though *Silent Spring* is a convenient historical marker and cultural touchstone, highly publicized environmental crises like the Cuyahoga River fire and the Santa Barbara oil spill, both which occurred in 1969, also stoked growing concerns about the hazards of industrial society in the United States. Guha's second wave was ultimately defined by the development of popular mass movements around environmental issues, but also divisions between the developed North and the developing global South and concerns about population and resource exhaustion. In this sense, as Guha puts it, the contemporary environmentalist movement "is certainly a child of the nineteen sixties, but also...perhaps a grandchild of the eighteen sixties."<sup>73</sup>

Guha also singled out the environmental movement from other 1960s activist movements, saying that it alone has "refused to go away" and was "alone among the movements of the sixties" in that "it has gained steadily in power, prestige and, what is perhaps most important, public appeal."<sup>74</sup> In August 1969 comments complaining about environmentalist opposition to the trans-Alaska pipeline controversy, Senator Ted Stevens of Alaska captured the tenor of the times, "Suddenly out of the woodwork come thousands of people talking about

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<sup>71</sup> Warde and Sörlin, "Expertise for the Future: The Emergence of Environmental Prediction c. 1920–1970," 40.

<sup>72</sup> Jack Lewis, "The Birth of EPA," The US Environmental Protection Agency, November 1985, <https://www.epa.gov/archive/epa/aboutepa/birth-epa.html>.

<sup>73</sup> Ramachandra Guha, *Environmentalism: A Global History* (New York: Longman, 2000), 3-5.

<sup>74</sup> Ramachandra Guha, *Environmentalism: A Global History* (New York: Longman, 2000), 1.

ecology.”<sup>75</sup> The journalist Robert Bendiner put it perhaps more eloquently in an October 20, 1969 *New York Times* op-ed titled “Man—the Most Endangered Species”:

Young Americans, like all the young who have gone before them, are doubtless struck by the fact that they have been brought into a world they are sure they never would have made....What is new, relevant, and hopeful is that a kind of crusade is now on to undo at least the physical damage inflicted on this earth by the half-dozen preceding generations and that the very effort promises at last to unite today’s contending generations in a single cause. Call it conservation, the environment, ecological balance, or what you will, it is a cause more permanent, more far-reaching, than any issue of the day—Vietnam and Black Power included.

In his editorial, Bendiner decried that 15 million fish had been killed “by municipal and industrial wastes in America’s rivers, lakes and streams” in 1968, that Lake Erie was “sick with decay”, that due to coal and iron mining practices millions of acres of land were “sinking into the ground”, and that carbon dioxide was increasing so alarmingly that soon humans will have to “wear an oxygen mask on earth as well as on the moon.”<sup>76</sup>

Another way of conceptualizing the global environmental turn around 1970 is as a seminal moment in the formation of what one group of sociologists, Meyer et al., referred to as the “world environmental regime.” They define this regime as “a partially integrated collection of world-level organizations, understandings, and assumptions that specify the relationship of

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<sup>75</sup> Peter A. Coates, *The Trans-Alaska Pipeline Controversy: Technology, Conservation, and the Frontier* (Lehigh University Press, 1991), 22; Lawrence Davies, “Scientists Study Future of Alaska,” *The New York Times*, August 31, 1969.

<sup>76</sup> Robert Bendiner, “Man--The Most Endangered Species,” *The New York Times*, October 20, 1969.

human society to nature” that grew out of processes that began, just as Guha also contends, around 1870. Meyer et al. see this regime arising from two processes. First, in “the long-term expansion of rationalized and authoritative scientific interpretations, which structures perceptions of common environmental problems”. This “scientization” of environmental problems itself emerged out of the scientization of world society, especially after World War II. Second, they see it in “the rise of world associational arenas—principally the United Nations.”<sup>77</sup>

Indeed, many scholars studying the formation of the global environmental regime in the late 1960s and early 1970s have underlined the 1972 United Nations Conference on the Human Environment that was held in Stockholm—the first such UN-led conference focused on environmental problems. Political scientist John McCormick argued that the UNCHE instantiated a truly “global environmental consciousness.” According to McCormick, the UNCHE transformed “the limited aims of nature protection and natural resource conservation to the more comprehensive view of human mismanagement of the biosphere.”<sup>78</sup> In sociologist Ann Hironaka’s view, the significance of the 1972 UNCHE was that it imagined an interconnected global ecology that was foundational to thinking about a *global* environmental agenda.<sup>79</sup> The PRC’s experience at the UNCHE, covered in chapter three, can very much be thought of as an encounter with the earliest version of the “global environmental regime”.

Summarizing the global convergence of environmentalist concerns in the latter half of the 20<sup>th</sup> century, John McNeill wrote, “By 1970...something new was afoot. The interlocked, mutually supporting (and coevolving) social, ideological, political, economic, and technological

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<sup>77</sup> Meyer et al., “The Structuring of a World Environmental Regime, 1870–1990,” 623.

<sup>78</sup> John McCormick, *The Global Environmental Movement* (Wiley-Blackwell, 1995), 127-128.

<sup>79</sup> Ann Hironaka, *Greening the Globe: World Society and Environmental Change* (Cambridge University Press, 2016), 26-27.

systems that we conveniently call industrial society spawned movements that cast doubt on the propriety and prudence of business as usual.”<sup>80</sup> Though this shift had begun in the developed world, it ultimately “emerged almost everywhere” such that “environmentalism had many faces, each with its own issues and agendas.” The following chapters delve into the Chinese “face” of this global transformation.

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<sup>80</sup> McNeill, *Something New Under the Sun: An Environmental History of the Twentieth-Century World*, 371.

## CHAPTER 2 - An Acceptable Problem: Zhou Enlai and Industrial Hazards

### I. Introduction

This chapter explores an important foundational period in the construction of *huanbao* in 1970-1971. It focuses on the acknowledgment by the Communist Party leadership, namely Zhou Enlai, that industrialization had created a new category of problems for Chinese society. Most of these problems were environmental in character, others were not. Lacking the conceptual vocabulary of “the environment” or “environmental protection,” Zhou, for example, linked together industrial pollution problems with car accidents as both negative downsides to industrial society. By paying attention to problems that were being publicly articulated in countries outside China and connecting them to local incidents, Zhou began to see the shadows of industrialization in China.

I show how this initial period was greatly defined by Zhou Enlai’s spring 1971 call for a mass campaign against the industrial “three wastes” (wastewater, waste gas, and waste solids) and by concomitant preliminary scientific investigation into the scale of pollution in China’s environment. It was an important epistemic moment in that it established industrial pollution as an actionable political and a scientific fact—it made pollution an acceptable problem for China to have. This period furthermore set the groundwork for *huanbao* by organizing what preexisting knowledge disciplines and practices would be brought to bear on these new industrial problems. The term “environmental protection” (*huanjing baohu* 环境保护) was not employed at this time, but other terms like “industrial hygiene” (*gongye weisheng* 工业卫生), “occupational disease” (*zhiye bing* 职业病), and “the three wastes” (*sanfei* 三废; wastewater, waste gas, waste solids) were employed to manage the pollutive side-effects of industrialization.

The chapter's next section scrutinizes Zhou Enlai's role in recognizing industrial pollution as a societal problem and rallying collective efforts to combat it. I examine Zhou's official speeches and published comments in order to provide an account of his role in legitimating industrial pollution as a "problem" in 1970-1971. Zhou's role in these developments has ensured his canonization as the simple "founder of China's ecological practice."<sup>81</sup> Here I try to add more nuance and complexity to this story. To this, I argue that Zhou was indeed an important figure in allowing industrial pollution to be the subject of Maoist mass mobilization. But his role was principally to define the issue as an issue and to define its general borders—producing knowledge about industrial pollution was in actuality a collaborative effort of peasants, workers, scientists, and cadres.

In the third section, I analyze Chinese scientific reports, scientific journals, Party-state documents, and other published materials produced in response to Zhou's early 1971 call for a mass campaign against the "three wastes", showing how various types of people constructed knowledge about industrial pollution and related problems within the context of the Cultural Revolution and through Maoist conceptual categories. In the process of countenancing such problems, people blamed capitalist construction before 1949 and Liu Shaoqi's "production first" and "profit first" counterrevolutionary lines. This did not negate the existence of pollution in socialist countries. Instead, it served as a discursive strategy that allowed individuals to engage with environmental issues within the politically charged context of the period. Therefore, it should be understood as a distinct, context-specific mode of environmental consciousness, rather

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<sup>81</sup> Maohong Bao, "The Evolution of Environmental Policy and its Impact in the People's Republic of China," *Conservation and Society*, 4, no.1 (2006), 38; see also Wang Xi王茜, "Zhongguo shengtai waijiao shijian de xumu: lishi huigu yu yingxiang 中国生态外交实践的序幕: 历史回顾与影响 [The Prologue to China's Ecological Diplomacy: Historical Review and Impact]," *党史研究与教学* [Party History Research and Teaching], June 2012, 13.

than an outright denial of socialist contribution to pollution as some post-Mao writers argued. The fourth section offers a conclusion, where I summarize my main points and reflect on their significance.

## II. Zhou Enlai's Role

In March 1977, the Office of the State council Leading Group for Environmental Protection (国务院环境保护领导小组办公室 or LGEP) published a collection of Zhou Enlai's remarks from the summer of 1970 to 1974. The document is titled "Premier Zhou Enlai's Talks and Speeches on Environmental Protection (周恩来总理有关环境保护的谈话和讲话)," even though Zhou did not use the term *huanbao* or *baohu huanjing* in the remarks. Still, the title shows that the LGEP retrospectively interpreted these comments to be about *huanbao*.

As early as May 1970, Zhou expressed clear concern about industrial pollution, human health, and the poisoning of China's soils, water, and air—and what he often called "public hazard" (*gonghai* 公害) issues. The comments were compiled by surveying the personal records of relevant cadres and were intended for the consumption of "leading cadres at all levels."

The first statement that the Leading Group for Environmental Protection retrospectively saw as being about environmental pollution was dated to Zhou's visit to the photographic film factory in Baoding, Hebei in May 1970. His interrogation of cadres there about what they did with wastewater were not merely rhetorical. They reflect Zhou's own inchoate understandings of environmental pollution that were just beginning to materialize. But they also demonstrate a genuine sense of urgency and confusion. Indeed, what defines this stage of environmental work



more than anything is the sudden awareness that there were environmental problems, *of some kind*, linked to industrialization and the need to define, study, and understand them.

A comment that Zhou made in June 1970 during an interview with “a comrade in charge of the Military Administration of the Ministry of Public Health” reveals several important features of how Chinese officialdom conceptualized the threat of industrial pollution at this early stage.

The health system should care for people’s health, especially for sewage and air pollution, which are easy to pollute. The nuclear blackmail of the United States and the Soviet Union was terrifying, but atomic or nuclear weapons tests don’t contaminate much. Ordinary conditions of sewage, polluted gas are much more serious. A few days ago, I met several Japanese students...They say that Japan has a lot of sewage not only on land, but also on the coast. In many places, fish have died. Some inland rivers in the United States are completely polluted...The Ministry of Health should find a way to deal with the sewage and air pollution. If capitalist countries don't do it, we socialist countries will. If sewage and air pollution are solved and the people are in good health, wealth of any kind can be created. What a fortune! From a health point of view, it must be addressed. In my opinion, the biggest disasters are sewage and polluted air, followed by car accidents. I read that more Americans died in car accidents than in the Vietnam War. Why all the cars? I see a little more advantage in cycling, which is great for health.<sup>82</sup>

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<sup>82</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Speeches and Talks on Environmental Protection],” 463-464.

It is worth noting that Zhou refers to another industrialized country's experience with pollution, especially the United States's and Japan's. Japan as an important reference point appears time and time again in later accounts of Zhou's personal environmental awakening. For example, Qu Geping—the first leader of the National Environmental Protection Agency—recalled how in 1969 Zhou Enlai assembled a small temporary group of 16 experts (Qu among them) to prepare future economic plans. In the course of their planning over the next several years, Zhou asked them to consider how to manage “public hazards” (*gonghai* 公害). Qu insisted that this term “public hazards” was popularized by a summer 1972 Japanese book that had been translated into Chinese and was popular in both countries, titled *Building a New Japan: A Plan for Remodeling the Japanese Archipelago* (《日本列岛改造论》). In the book, Kakuei Tanaka, then Japan's Minister of International Trade and Industry, argued that Japan was a “public hazard island” (*gonghai liedao* 公害列岛). As in other developed industrial countries since the mid-1960s, “problems of industrial pollution had been in the forefront of public discussion” in Japan “and the need for effective government measures to prevent the further deterioration of the urban living environment was becoming increasingly obvious.”<sup>83</sup> In simple terms, we can consider “public hazard” in this period to refer to the environmental and public health externalities of industrialization more broadly.

Qu also recalled an incident in December 1970, when Kyoko Asanuma, the wife of Inejiro Asanuma the former Chairman of the Socialist Party of Japan assassinated in 1960, visited China. Asanuma's son-in-law, Nakano, was a television reporter who specialized in environmental issues. Zhou asked the son-in-law to speak about environmental pollution in

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<sup>83</sup> John Sargent, “Remodelling the Japanese Archipelago: The Tanaka Plan.” *The Geographical Journal* 139, no. 3 (1973), 426.

Japan at length, including what measures the Japanese government was taking. Zhou invited scientists, technicians, and the heads of various ministries and commissions to listen to his talk. However, reflecting the political climate of the Cultural Revolution, only the scientists and technicians dared to be caught listening to a foreign reporter, so they set up a microphone in their room whilst the ministers were kept in an adjacent meeting room and listened to the talk via speaker.<sup>84</sup> Nakano used the term public hazard here—and it can be found scattered in some pre-summer 1972 documents, suggesting that it was in at least limited usage before *Building a New Japan: A Plan for Remodeling the Japanese Archipelago*. Nakano spoke disparagingly about Japan's ecological state, discussing the famous Minamata disease, which had just been officially countenanced and explained by the Japanese government in 1968.

When Premier Zhou met with us, he said that he was very interested in Japan's public hazards and hoped to have a talk with you. I would like to talk about public hazards first, and then talk about how the air and sea water are polluted...Japan's pollution is famous all over the world. Many people died due to public nuisance. There is a kind of "mercury poisoning disease" [水俣病, known as Minamata disease] that can damage the human brain. With this kind of disease, I jump around, roll around, like crazy, foam at the mouth, and finally can't speak. Many universities have been investigating the cause of the disease for nearly ten years. Recently, Kumamoto University discovered that there was a chemical factory in that area, and the wastewater from the factory was the cause of

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<sup>84</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], "Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai's Speeches and Talks on Environmental Protection]," 473.

the disease. They found that the brain cells of the deceased contained a large amount of mercury, which was confirmed to be mercury poisoning.

Nakano linked the causes of pollution to capitalist market incentives. Some Chinese ministers asked questions. One asked Nakano, “Which industrial systems and industrial poisons caused the most serious pollution in Japan?” Nakano responded:

The factories that cause the most serious pollution are joint ventures in oil, large chemical companies, steel enterprises, shipyards, and coking plants. Mercury, arsenic, and other heavy metals, although present in small amounts, pose a significant threat...Japan’s roads are narrow, and there are residences by the roadside. In places with heavy traffic, residents inhale a large amount of lead-containing gas. After inhalation, new symptoms occur. As we know, in a printing factory, if a worker’s blood contains 60 micrograms of lead, symptoms can occur, but in Tokyo, residents’ blood can contain up to 120 micrograms of lead. The disease is similar to lead poisoning, with high blood pressure, rapid heart rate, and pale complexion. This disease used to be contracted by print workers, but now city dwellers are also getting it.<sup>85</sup>

Nakano is describing here in miniature an intellectual shift that facilitated a broader environmental consciousness in China: the recognition of industrial pollution as a societal issue that affects not only specialized industries or workers in specific factory spaces, but anyone

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<sup>85</sup> Qu Geping 曲格平 and Peng Jinxin 彭新近, eds., “Dui Wai You Xie Yaoqing Riben Jizhe Zhongye Jibang Zuotan Gonghai Wenti 对外友协邀请日本记者中野纪邦座谈公害问题 [The Foreign Friendship Association Invites Japanese Journalist Nakano Yoshikuni to Discuss Pollution Issues],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]* (Zhongguo huanjing kexue chubanshe, 2010), 489.

living in or near an industrialized or urbanized environment. This sort of nationalization of the spatiality of factory conditions in China is most evident in how studies into industrial pollution in 1971-1972 first emerged through the preexisting discipline of industrial hygiene (*gongye weisheng*), but by 1973 it was clear to Chinese scientists that industrial hygiene was much too narrow a framework to handle the far-reaching and complex challenges posed by pollution. This realization marked a critical step in the evolution towards a more inclusive and comprehensive environmental protection ideology—*huanbao*—that encapsulated the entirety of society's interaction with the environment, not just isolated industrial sectors. This incident furthermore reveals a delicate balancing act between the prevailing politics of the Cultural Revolution and the inherent necessity of exposure to foreign ideas to drive creative solutions for environmental problems. This kind of clandestine activity showed how political leadership could still maneuver around political sensitivities in order to glean valuable insights from international experiences.

In the June 1970 block quote above, Zhou alluded to the superiority of socialism in solving these newly-articulated problems. As the next section shows, this was not merely revolutionary rhetoric, but reflected a sincere belief that China's socialism held within it both the ability to more fully understand the nature of environmental pollution and develop effective solutions to it. Maoism, as would later be charged, was not ideologically blind to environmental pollution—at least not anymore blind than other industrialized societies that also did not yet see or feel or know about the consequences of industrial activity. China, like everywhere else, expressed global naivete about environmental pollution.

Third, it is hard not to be drawn to Zhou's comments about the threat of car accidents—which was also something that Asanuma's son-in-law commented on in his speech. In one sense,

Zhou's comments combining car accidents with sewage and air pollution reflect the embryonic nature of how Chinese leaders were thinking about industrialization's dangers. However, it also hints at a broader, more capacious transformation in how some Chinese leaders were imagining their role as governors of China's biopolitical body—in a Foucauldian sense. In other words, they began to interpret a new category of problems that now fell within the purview of state action: slower, indirect, less perceptible, less intuitive, chemical, microscopic, more requiring of detailed scientific investigation, and seemingly universal to the industrial way of life. So viewed, the threat of industrial pollution was viewed as just one expression of an array of slow-motion industrial consequences that might harm life in China. It, in a sense, marked the Party-state's awakening to what environmental theorist Rob Nixon's coined "slow violence"—a term he invented to describe the gradual, invisible processes that are the heart of so many environmental and health crises in industrialized societies. Being attuned to the industrial universality of slow violence helped diminish China's exaggerated distinctive features vis-à-vis the rest of the world, perhaps laying crucial groundwork for Deng's later more thoroughgoing and systematic efforts to globally integrate China. Japan's first name may have been Capitalist and PRC's first name Socialist, but their surnames were Industrial and increasingly that surname was the source of a special category of material problems facing society.

Likewise, Zhou's comments downplaying the threat of nuclear radiation are eyebrow-raising. It would not be the only time he brushed off the danger posed by nuclear weapons or radiation. In an August 1970 speech to representatives at the National Symposium on Promoting Revolution and Production in Light Industry (接见全国轻工业抓革命、促生产座谈会代表时的讲话), Zhou also downplayed the dangers of nuclear radiation: "Atomic contamination is temporary; industrial contamination is daily." In comments directed to the Chief of the Military

Administration of the Ministry of Health a week earlier, Zhou made yet another similar remark, “Fish and shrimp are dead off the coast of Japan. The atomic bomb is not terrible, in fact, the real harm to people’s health is long-term diffuse [chronic?] harm [长期的慢性危害].”<sup>86</sup> Of course, it is hard to square these comments with what is known about the dangers of radiation, but perhaps the Cold War raised more questions about nuclear explosions than it did later nuclear powerplant disasters like Chernobyl.

Lastly, Zhou underlined the relationship between industrial pollution with human health. The object that was endangered by industrial activity, in other words, was not nature itself, but humans. Rivers, soil, air, and other material features of our environment that we now consider to be objects worthy of protection for their own sake, were, in Zhou’s view, more important as mediums that could endanger human health and habitation. In comments in November and December of 1970, Zhou outlined the practical steps that needed to be taken to better understand the problem of industrial pollution:

Why are only foreign sources cited? Why can’t we do some experiments? Can mercury [汞] be absorbed? Have we experimented? The United States did not pay attention to this problem in the past 20 years. If it pays attention this year, it will be too late, and it will already be polluted. Do Chinese people excrete mercury in urine or feces? How much mercury do you eat every day? How much mercury is excreted? The water sources, river water, tap water...in Beijing should all be tested for mercury and other harmful

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<sup>86</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Speeches and Talks on Environmental Protection],” 464.

substances. After doing the experiment, write a report. – Zhou’s remarks to Deputy Director Xie Hua (谢华副主任), November 1970.

If the problem of industrial pollution is not solved, there will be no fish to eat in the future. Bring up the problem as a separate item at the planning meeting...London used to have the most smog, now it's less than New York. In the United States, gasoline is abused, coal is abused...Japan, too, developed abnormally after the war...We have to think about future generations. Industrial hazards are a new subject for us. As soon as industrialization began, this problem became serious. The Ministry of Agriculture and Forestry should raise this issue. Agriculture and forestry need both air and water. The Ministry of Health should give priority to prevention. – Zhou’s remarks to the International Department of the CPC Central Committee, the Second Department of the General Staff, the Ministry of Agriculture and Forestry and the Ministry of Foreign Affairs, December 1970.<sup>87</sup>

Zhou clearly believed that scientific investigation—experimentation and testing in particular—were the key methodologies through which China’s polluted environment ought to be known. The imminent problem was that the ways in which in which China’s industrial features, natural landscapes features, and human bodies were chemically and microscopically connected through pollution was unknown. Industrial hazards were “a new subject” and it was only now possible to

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<sup>87</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Speeches and Talks on Environmental Protection],” 465.



categorize development into “normal” and “abnormal” types according to how much industrial hazards and environmental pollution was produced along with it.

Throughout the first half of 1971, Zhou seemed to grow more alarmed by the month. In February, Zhou met with Representatives of the National Conference on Integrated Traditional Chinese and Western Medicine and the Staff of the National Exhibition of New Chinese Herbal Medicine and Therapy. A minister accompanying Zhou

Zhou: You are a doctor at the factory and mine hospital (Jilin Chemical Hospital doctor 吉林化工医院医生), serving the people of the city, sending doctors and medicines to people’s homes. You are from Jilin City, how many medical staff are there?

Zhang Jinxiang: 538.

Zhou: What is the population of the Chemical Industry area?

Zhang: 140,000.

Zhou: Have you done research on pollution?

Zhang: There is a vocational department that is just now going to the factory to do chemical protection and containment.

Xu Jinqiang [the Deputy Minister of the Ministry of Fuel Chemistry Industry 燃料化学工业]: The chemical industry has the biggest pollution problems. This is a medical problem and a problem all over the world. Rising industrialized countries cannot follow the old path... Wastewater, waste gas, and waste oil, you young people should study it

carefully. There are not many fish in Japan's inland waters now; Japan's Lake Biwa, in western Kyoto, used to have beautiful mountains and clear waters, like our Taihu Lake, but now it is said that it is like a stinky pond, with no fish and the water is black... This will be a new subject. It was a mistake not to invite the Ministry of Health for the planning meeting. You didn't fight for it either. They have been invited this time to learn from you. The public hazard is related to the Ministry of Metallurgy, but the Ministry of Chemical Industry is the worst. You [Jilin Chemical Hospital] have a good spirit of serving the masses, have researched methods to prevent and control benzene and lead, have set up a red flag, and have expanded the spirit of serving the people to serve the entire proletariat. Don't just treat the disease, but start with the prevention of public hazards. All industrialized countries have found this problem.

In March, one of the more influential pollution incidents in provoking systematic, nationwide action against environmental protection occurred near Beijing. Fresh fish sold in a Beijing market caused people who ate it to feel weak, have headaches, stomach pain, nausea, and vomiting. The Beijing health department reported the incident to the State council. Zhou, seeing the report, called for an investigation. In their later report, finished in June, the investigation team reported that water from the Guanting reservoir (官厅水库) was polluted and that it was difficult to track down the source of the pollution as the sewage seemed to be multilocal. Qu Geping considered this "the first pollution control project carried out by the state" in the history of the PRC.<sup>88</sup> More recently, a few Chinese-language researchers have tried to argue that the

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<sup>88</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], "Zhou Enlai Zongli Youguan Huanjing Baohu de Tanhua He Jianghua 周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai's Speeches and Talks on Environmental Protection]," 473.

pollution of the Guanting reservoir was the “beginning of environmental protection” in China.<sup>89</sup> But starting with Guanting misses the important developments of 1970-1971.

### III. “Some New Topics That Need Scientific Research Have Been Found”

In April of 1971, the Military Administration of the Ministry of Health responded to Zhou’s call to do something about “three wastes” problems by issuing Document 131 (卫生部军官会卫生管子第131号文件). Titled “Notice on Investigation of Water Source and Air Pollution caused by Industrial ‘Three Wastes’” (关于工业“三废”对水源、大气污染程度调查的通知), Document 131 was the first mandate that called for a mass campaign against the industrial “three wastes” (wastewater, waste gas, waste solids) pollution. Document 131 was sent to the health bureaus of Revolutionary Committees in all provinces, autonomous regions, and municipalities across China. This marks the starting point in the Party-state’s official, systematic, organized, and long-term reckoning with industrial pollution. Following its issuance, cadres, factory workers, laborers, miners, scientists, and technicians across the nation were mobilized to study the “three wastes” emissions in their industrial space, analyze the wastes’ impact on surrounding communities, and find ways to eliminate them—preferably through “comprehensive utilization” (*zonghe liyong* 综合利用).<sup>90</sup> Comprehensive utilization is discussed more thoroughly in chapter four, but it referred to innovating ways to somehow recycle waste substances leftover from industrial processes.

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<sup>89</sup> Lei Duan 蕾段, “Xin zhongguo huanjing shiye de qibu: 1970 niandaichu guanting shuiku wuran zhilide lishi kaocha 新中国环保事业的起步: 1970年代初官厅水库污染治理的历史考察 [The Beginning of Environmental Protection in New China: A Historical Survey of Pollution Control of Guanting Reservoir in the Early 1970s],” *中国现代史 [Modern Chinese History]*, January 2016.

<sup>90</sup> Liu Hongtao 刘宏焘, “20 shiji 70niandai de huanjing wuran diaocha yu zhongguo huanbao shiye de qibu 20世纪70年代的环境污染调查与中国环保事业的起步,” July 29, 2016, <https://www.h2o-china.com/news/243866.html>.

Some factories were deeply committed to the campaign, producing reports and booklets on their own experience for others to learn from. The Shanghai Liaoyuan Chemical Factory (上海燎原化工厂 or SLCF) was one of these. The SLCF published a booklet in November 1971, documenting the results of six months of their successful comprehensive utilization practices. Their preface demonstrates several key themes of the campaign: it was a mass movement (*qunzhong yundong* 群众运动), it centered comprehensive utilization as the main anti-pollution practice, and it framed anti-pollution work as an essential part of “Mao Zedong’s Great Proletarian Cultural Revolution.” They wrote:

Under the guidance of Chairman Mao’s revolutionary line and propelled by the great victory of the Proletarian Cultural Revolution, a mass movement to promote comprehensive utilization and turn harms into benefits is flourishing in China’s industrial sector... Taking Daqing as an example, launching a revolutionary critique, promoting self-reliance and hard work, a mass movement to “fight the three wastes, eliminate public hazards” has been set off in the whole factory, vigorously promoting technical revolution and technological reform, turning waste into treasure, and transforming harm into benefit.

They further situated their factory’s anti-pollution campaign in line with the ideological climate of the Cultural Revolution, blaming “expert-led management” (专家治厂) for the factory’s rampant past pollution. This term refers to a management approach in which experts, often with deep technical knowledge in a specific field, are put in charge of managing an organization or factory. During the Mao period, there were debates about the ideal form of factory management. Some advocated for expert-led management, as experts possess the technical knowledge necessary for optimizing production and efficiency. However, this approach also faced criticism

during the Cultural Revolution for potentially marginalizing workers' voices and ignoring their on-the-ground experiences and insights. This tension would be a core feature of *huanbao*, but here it was still within the bounds of what they called “environmental hygiene” (环境卫生 *huanjing weisheng*).<sup>91</sup>

In 1972, the Hubei Provincial Health and Epidemic Prevention Station (湖北省卫生防疫站) reprinted a collection studies and surveys from all over China that were conducted as a response to Document 131. These studies and surveys were first presented at Beijing-based workshops in late 1971 held by the Military Administration of the Ministry of Health, 59 of which they selected for publication.<sup>92</sup> These scientific and policy reports are useful in examining Chinese perspectives on pollution before global terminologies and discourses about “environmental protection” became more prominent and entrenched in China’s scientific and policy discourse. The phrase “environmental protection” (*huanjing baohu*) does not appear once in over 300 pages of 59 reports. Instead, investigative teams drew from a deeper 20<sup>th</sup> century discourse of “hygiene” that governed public health management in China.<sup>93</sup> Scientists and cadres used terms like “environmental hygiene” (*huanjing weisheng*) or “industrial hygiene” (*gongye weisheng*) to describe the work they were doing, as well as slogans like “eliminate the three wastes” and “eliminate the three harms” (both referring to the same things).

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<sup>91</sup> Shanghai Liaoyuan Chemical Factory 上海燎原化工厂, *Gongye Sanfei de Zonghe Liyong* 工业“三废”的综合利用 [Comprehensive Utilization of the Industrial Three Wastes], vol. 2 (Shanghai renmin chubanshe, 1971), i.

<sup>92</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Hygiene Work Experience Exchange] (湖北省卫生防疫站翻印 [Reprinted by Hubei Provincial Health and Epidemic Prevention Station], 1972).

<sup>93</sup> For more on this particular topic of *weisheng*, see Ruth Rogaski, *Hygienic Modernity: Meanings of Health and Disease in Treaty-Port China* (University of California Press, 2014).

These 59 scientific reports were written by investigation teams all over China: Beijing, Sichuan, Shanghai, Heilongjiang, Shijiazhuang, Jiangxi, Fujian, Jilin, Shandong, and more. The reports were placed into three categories: (1) The Comprehensive Utilization and Health Survey of the “Three Wastes” in Industry (工业”三废”综合利用及卫生调查); (2) Prevention and Treatment of Silicosis (防治矽肺, also known as “grinders disease”); (3) Prevention and Treatment of Occupational Poisoning (职业中毒的防治).

### *Investigation and Study*

Given the geographic breadth and analytic depth on display in these reports, it is clear that there was a voluble and committed response to Document 131’s command that doctors, scientists, and workers across China begin conducting experiments into local conditions of the “three wastes” and share potential solutions. Experimentation and testing were the scientific procedures used to discover evidence about pollution and its treatment—activities that were open to more than just scientists, but also citizens and workers. Progress was proven through quantitative measures, like testing the chemical composition of a substance after a certain detoxifying process. For example, at the Erlan Electroplating Factory in Sichuan, a group of workers and technicians organized together to experiment with new ways of galvanizing iron without producing toxic byproducts.<sup>94</sup> Despite having “no equipment,” the team conducted hundreds of tests until finally developing a non-toxic galvanizing process, which they proved with a table showing before and after measurements. The team argued in their report that their new non-toxic galvanizing process produced materials that fit the national standard and also “ensured the health of workers, avoided the pollution of water sources by chemical compounds

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<sup>94</sup> Galvanizing is the coating of iron or steel with zinc in order to prevent corrosion and rust.

in wastewater, and turned harms into benefits.” The wastewater produced could even be safely used to irrigate farmland as it only contained iron, which has a “fertilizer effect”. Their work, they claimed, was a “great victory in Chairman Mao’s revolution.”<sup>95</sup>

Likewise, the Health and Epidemic Prevention Station at the Tianhu Small Coal Mine in Fujian (天湖小煤矿福建省卫生防疫站) wrote a report about their experience experimenting with dust-control measures in an effort to prevent silicosis. Silicosis (矽肺 *xi fei*) is a lung disease caused by long-term inhalation of tiny pieces of silica (or “dust”). Due to the volume of studies conducted on silicosis in these reports, it is clear that it was a particular pressing concern across the country—perhaps because silicosis is common in all kinds of industrial settings: mining, construction, steel manufacturing, etc. In their studies, they measured the amount of silica dust in the faces of working and non-working coal miners in different environments to determine silica inhalation levels at different points in the mining process. They followed Chairman Mao’s teachings in developing their experiments, quoting his saying that a “a correct understanding often needs to go from material to essence (*jingshen* 精神), then from essence to material, from practice to understanding, from understanding to practice many times before it can be completed.” From this, their method of experimentation was to “test, discuss, and improve” and then after improvement, “test again, discuss again, and improve again. Test and measure according to the actual production situation, and then analyze and study the test results to find the reasons for the shortcoming.” This process, they claimed, was repeated over and over until they developed several useful dust prevention techniques, which were mostly based on engineering different ways of adding water at different points of their drilling processes. Eleven

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<sup>95</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 23-25.

tables were used to compare various before and after measures, as proof of the effectiveness of their work.<sup>96</sup>

These are just a few examples of how knowledge about industrial pollution was produced at the ground level during this early-stage reaction to the perceived dangers of industrialization. Industrial workplaces were transformed into laboratories, within which workers themselves could participate and bootstrap solutions. Experimental goals were based on quantifying the problem—usually some chemical or other microscopic substance—and then developing practical, frugal solutions that lowered the value of that substance when measured again. Workplaces were now understood as sites where toxicity was produced and expelled to other places and also a principal place where toxicity was encountered by workers themselves. A goal was to make those material intersections visible.

As with the Tianhu Small Coal Mine in Fujian, many reports were assembled from city hospitals, “revolutionary” hygiene bureaus, and anti-epidemic revolutionary committees (卫生防疫革命委员会). In most cases, these were attached to cities, factories, or mines. This evidences how many Chinese viewed pollution initially as mostly a health or hygiene problem. Quite logically, in the absence of a coherent and advanced environmental science regime, those scientific agents most fit and able to see the problems caused by industrial pollution were students of the human body and human health. Studying pollution was certainly about testing water, air, and soil—as was done frequently in these reports—but it was also a matter of testing

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<sup>96</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 105-110



the human body. This epistemic campaign to understand the relationship between industrial processes and health increasingly linked the two.

*Studying Wastewater: Its Types and Hazards*

But even if the safety and health of the human body was the premise from which scientific investigation expanded outward, in the case of widespread industrial pollution, the “environment” naturally came into question as the media through which hazards flow or are ingested. Water was one medium of pollution that generated a great deal of attention and concern. One summary report from December 1971, titled “Problems found in the investigation of water sources polluted by industrial water” by the Water Pollution Investigation Technical Exchange Group (水污染调查技术交流小组), described the general situation of China’s water resources, attempting to build a nationwide picture built from many local investigation reports. Its authors began with an alarmist tone, noting that after Document 131 was issued, investigation teams throughout China found many instances of polluted water, claiming they found that “all industrial cities and large, medium, and small enterprises discharge wastewater into rivers, causing pollution to varying degrees.” The resulting national goal to which their work was directed was to develop methods of eliminating the “three wastes” through a “scientific basis.”

From their collection of local reports produced around the country, the Water Pollution Investigation Technical Exchange Group placed the sources and types of current pollutants into four categories, defined both by the type of industrial activity producing the pollutant and the content of the pollutant itself. The first was wastewater discharged from chemical, mechanical, metallurgical, mining, and similar enterprises. These enterprises produced harmful substances like “phenol, cyanogen, mercury, chromium, arsenic, copper, zinc, phosphorous, and benzene.”

They also saw linkages between organic phosphorous and other pesticides used in agriculture and the pollution of water sources, citing Tianjin's use of over 600 tons of organic pesticides in 1970 as creating all manner of unknown potential hazards. The meaning of these chemicals changed due to their now-known pollutive properties: some of these chemicals were already known as dangerous, but many had not been. This meant that "many hazards are not being noticed and are easily overlooked by the people." The report went on to describe how in Tianjin, mining byproducts were being detected not just in surface water, but also in groundwater and in fish bodies. "More attention needs to be paid," they concluded, "to the toxic trace elements and organic poisons that can cause chronic diseases."

The second category was organic wastewater discharged from papermaking, sugar refining, and food processing. This wastewater contained a large amount of organic matter that "consumed dissolved oxygen" (what fish and other aquatic organisms need to breathe). They discovered, for example, that the Jiaying Dongfeng Paper Mill in Zhejiang polluted rivers in four different counties, "causing great losses to the fisheries." The spatial impact of organic wastewater from even a small number of factories surprised them: two paper mills and one rice mill in Qiqihar (in Heilongjiang) caused dead fish in a 300-kilometer section of the Nen River (嫩江). The third category was wastewater containing large amounts of inorganic suspended matter, for example ash discharge from coal power plants. This inorganic matter silts up rivers, causing riverbeds to rise, thus making it more difficult to manage rivers during rainy seasons and floods. The fourth category was wastewater containing pathogenic microorganisms. Not much seemed to be known about this particular type, though the report noted that Guiyang used

wastewater from slaughterhouses to drain nearby fields. Suggestively, local farmers indirectly consumed this water, leading to an increased prevalence of Leptospirosis in the area.<sup>97</sup>

The Water Pollution Investigation Technical Exchange Group also categorized the hazards caused by industrial wastewater into three types. The first was the danger they posed to the lives and health of the general public. They noted that during the recent conference exchanging local experiences, attendees from all over the country brought up different issues they were facing. The investigation team from Jilin claimed that four rivers could no longer be used as domestic drinking water sources. Citizens that did drink from the rivers reported “dizziness” and “abdominal pain”. The team from Guangzhou reported that portions of the Pearl River were so polluted that 3 million people were now endangered. The Beijing team reported that they discovered how a chemical plant was dumping sulfides into the Dashi River, such that commune members several kilometers downstream had rampant anemia and goiter.

Second, they began to relate how pollution from different industrial enterprises affected one another. For example, wastewater containing benzene and phenol from a paint factory in Hangzhou polluted the food products made at a food factory in Hangzhou. Wastewater from a paper mill in Jilin flowed downstream to other paper mills, meaning they could no longer meet their water supply requirements. The Nen River in Heilongjiang was polluted with “yellow sticky flocs” (黄粘絮状物), that blocked water system pipes of downstream factories. Third, the technical exchange group identified the irrigation of fields with industrial wastewater as a

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<sup>97</sup> According to the CDC, “Leptospirosis is a bacterial disease that affects humans and animals. It is caused by bacteria of the genus *Leptospira*...Without treatment, Leptospirosis can lead to kidney damage, meningitis (inflammation of the membrane around the brain and spinal cord), liver failure, respiratory distress, and even death.” <https://www.cdc.gov/leptospirosis/index.html#:~:text=Leptospirosis%20is%20a%20bacterial%20disease,have%20no%20symptoms%20at%20all.>

dangerous process, outlining how toxic chemicals were found in crops around the country. However, the degree to which these crops were harmful “needed to be further studied”.

How were these Party cadres conceptualizing the solutions to the pressing problem of industrial pollution that had now been identified in response to the issuance of Document 131? A third and final section of the summary report attempted to answer this question. They suggested several ideas. First, they said Party leadership at all levels needed to identify relevant departments and form “three wastes” investigation cooperation groups. Beijing’s recent efforts were a prime example of what to do: they mobilized the masses, implemented large-scale cooperation between the Party and the masses, and investigated the “three wastes” pollution in a 20-day campaign. Following Premier Zhou Enlai’s instructions on November 5, 1970 to “test all of the water sources, river water, tap water...in the Beijing area...to see if there are any minerals and other harmful substances,” leaders in Beijing mobilized the Bureau of Urban Construction, the Office of Science and Technology, the Bureau of Chemical Industry, the Ministry of Health, the Academy of Medical Sciences, and the Bureau of Light Industry. This indicates how industrialization, urbanization, medicine, and science were increasingly linked together as both the nexus of environmental problems and also as holding the solutions to those problems through the unification of their disciplines of knowledge. Together, cooperation groups from 20 of Beijing’s districts investigated Beijing’s “nine rivers (九条河道), 500 water wells, 26 major sewer outlets, and more than 370 pieces of grain, vegetables, and fish meat” within which they discovered phenol, cyanogen, arsenic, mercury, and chromium. They also tested human excrement, the bodies of more than a 1,000 people in three districts, and the air—producing more than “20,000 pieces of test data” (二万多个化验数据).

Second, the Water Pollution Investigation Technical Exchange Group advocated creating more health and epidemic prevention departments and training “special personnel” to handle that work on a permanent basis. Similarly, “labor hygiene centers” (劳卫所) needed to hold more classes to teach people about industrial pollution. A third recommendation focused on improving technical equipment: better testing equipment, especially for detecting chemicals. Fourth, they reported that there needed to be a multitude of long-term investigations into the discharge of industrial wastewater across China, and that they needed to mobilize the masses to conduct “mass surveys” and then later send in “professional teams” (专业队伍) to conduct more “in-depth investigations.” Another example of how cleaning up the “three wastes” was to work was exemplified by Tianjin: there, hospitals and factories jointly organized laboratory testing classes that taught more people how to test for pollutive substances.<sup>98</sup>

*Microscopic to Macroscopic: Redefining Large-scale Geographic Relationships and Space through Microscopic Substances in Water*

In the eyes of the Water Pollution Investigation Technical Exchange Group, the amalgamation of all these local survey reports had several important implications. First, the scale of wastewater pollution that investigation teams discovered raised concerns about the rural industrialization efforts of the 1950s and 1960s, like the “five small industries” (五小工业) and the Third Front. The “five small industries” refers to the small-scale production of iron and steel, cement, chemical fertilizer, energy, and machinery in small localities promoted during the Great Leap Forward to enable greater economic self-reliance within any given commune. Though each

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<sup>98</sup> All quotes in this section are taken from *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 5-8.

individual production point was small, together they produced a significant national amount of each product. Data from January 1972, for example, showed that “60 percent of the total production of chemical fertilizer [came] from local plants.”<sup>99</sup> The Water Pollution Investigation Technical Exchange Group mapped this new knowledge about the pollutive qualities of industrial enterprises—even small-scale ones—onto the geography of China’s industrialization:

At present, the “five small” enterprises in various parts of our country have been vigorously developed... The problem of industrial wastewater needs to be given enough attention. Most of the “five small” enterprises, especially small chemical fertilizer factories, small chemical fiber factories, and small oil refineries, have poor production equipment, so their wastewater contains high concentrations of harmful substances and is widely distributed. The scope of influence of each factory will not be large, but collectively, their impact will be huge.

Many experimental reports were produced by small teams at “five small industries” sites. Workers at the Tianhu Small Coal Mine, for example, framed their anti-pollution work as “a major event related to the consolidation and development of the ‘five small industries’ and the further implementation of Chairman Mao’s great strategic policy of ‘preparing for war, preparing for famine, and serving the people.’”<sup>100</sup> Communes, meant to be economically self-reliant in important ways, were now intricately linked through the invisible toxic by-products of their industrial processes.

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<sup>99</sup> Jon Sigurdson, “Rural Industry—A Traveller’s View,” *The China Quarterly* 50 (April 1972), 317.

<sup>100</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 105.

Similarly, the massive industrialization of the Chinese interior that had begun five years prior—the “Third Front”—now also posed a new series of problems for the rest of China located downriver from Third Front factories.<sup>101</sup>

The Third Front construction, and some new factories are built in mountainous areas... The water quality of rivers in mountainous areas fluctuates greatly... Most of the Third Front factories are built upstream of the water source. If the comprehensive utilization or treatment of sewage and wastewater is not paid attention to when the factory is built, it may soon have a severe impact. For example, the Nanming River in Guiyang, Guizhou Province, the ratio of consumption water to industrial wastewater is two to one in the dry season.<sup>102</sup>

This newly-produced knowledge about the microscopic properties of wastewater and its systematic categorization signified a new way of seeing China’s national landscape. The consequence of these studies was to begin the process of building a map of pollution in China that was national (or even supranational) in breadth, but microscopic in depth. Seeing this China required using scientific methods to make unseeable substances visible. Places separated by huge distances were now connected through pollution: substances produced at one factory, for example, linked it to other places hundreds or thousands of kilometers away.

Survey results in many regions show that not only the downstream of cities is polluted, but also the upstream of cities is also polluted to varying degrees. For example, the

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<sup>101</sup> For more on the Third Front, see: Covell Meyskens, *Mao’s Third Front: The Militarization of Cold War China* (Cambridge University Press, 2020); Barry Naughton, “The Third Front: Defence Industrialization in the Chinese Interior,” *The China Quarterly* 115 (September 1, 1988): 351–86.

<sup>102</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 7.

sewage and wastewater in Fushun City, Liaoning Province, after being discharged into the Hun River, has not yet achieved complete purification in Shenyang (flowing 45 kilometers). In the upper reaches of Shenyang, sweet substances such as phenol, oxochrome, copper, and lead were still detected...In Heilongjiang Province, several factories in Qiqihar discharged phenolic wastewater into the Nen River in 1959, which affected the drinking water quality of Harbin City. After 65 years, organic wastewater caused dead fish to occur year after year in the 300-kilometer downstream of Qi City. The industrial wastewater in Jilin City was discharged into the Songhua River, which also affected the water source of Harbin City. After the sewage in Erbin City was discharged into the Songhua River, the downstream section of the river hundreds of kilometers was affected. For example, poisonous substances can still be detected in Tonghe. The above several examples show that the impact of wastewater from large industrial cities on rivers can spread thousands of kilometers away.<sup>103</sup>

Proposed solutions to the wastewater problems reflected this newfound appreciation for the ways in which communities were linked with one another through pollutive processes. The Water Pollution Investigation Technical Exchange Group understood that water pollution did not adhere to political boundaries and so cleaning up rivers and lakes was in many cases not the task of any individual province, county, municipality, or bureau. Accordingly, they suggested that all relevant cities on a given river system needed to form their own cooperation group when cleaning up a river. “For example,” they wrote, “in Liaoning, five cooperative groups were formed according to the five rivers in the province to conduct investigations.”

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<sup>103</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 5.



### *To Fight the Three Wastes is Revolutionary*

The reports following Document 131 also situated the fight against pollution as the next step in Mao's Great Proletarian Cultural Revolution that had begun just several years prior in 1966. The Beijing 'Three Wastes' Pollution Investigation Cooperation Group (北京市“三废”污染情况调查协作组) produced a report titled “Mobilize the masses and carry out large-scale cooperation to carry out ‘three wastes’ pollution investigation.” In it, they admitted that even though Chairman Mao's Great Proletarian Cultural Revolution led to “incredible” industrial and agricultural production successes, the resulting pollution had “also caused some harm.” The existence of industrial pollution in and of itself was marshalled as evidence that Mao's Revolution was working—after all, only advanced, developed economies had these types of problems. At the same time, the success of Maoist industrialization and production efforts meant that measures now needed to be taken to fight the “three wastes.” Fortunately, “the superior socialist system, will definitely solve the ‘three wastes’ hazards that capitalist countries cannot solve.”<sup>104</sup>

In the view of The Beijing 'Three Wastes' Pollution Investigation Cooperation Group, Mao's proletarian revolution was especially sensitive to it. The Beijing Cooperation Group underlined how Beijing's Municipal Revolutionary Committee formed a “three wastes” leading group that was preparing for the establishment of a dedicated “three wastes” office, having sent people to Shanghai, Nanjing, and other cities to learn from places that had encountered more advanced “three wastes” problems. The Beijing Cooperation Group also found it necessary to

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<sup>104</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 14.

criticize as counterrevolutionary the “erroneous theories” of some factories which claimed that the “three wastes” were inevitable and nothing could be done to prevent them. These theories were not in accordance with “Chairman Mao’s proletarian revolutionary line,” which countenanced the “three wastes” and its dangers. The Beijing Cooperation Group furthermore connected their work to Maoist secularism, arguing that those opposed to anti-pollution work—or thought it too difficult—needed to “emancipate the mind from superstition.”

Class analysis also shaped anti-pollution activities. The Institute for the Control of Pharmaceutical and Biological Products (药品生物制品检定所) found that rice at a commune in Huailai county, in Hebei, had high levels of arsenic in its rice, which disproportionately affected “poor and lower-middle peasants”. They eventually found the source of the rice pollution and eliminated the arsenic traces from the rice, to which a local cadre said, “The Party and the health department are so responsible in taking care of the health of the poor and lower-middle peasants. In the future, we must learn how to manage our food better.”<sup>105</sup> But “poor and lower-middle peasants” were more than just the objects of the Party’s work against pollution, they were critical participants. For example, in Beijing, the Chaoyang Hospital and Third Hospital of Beijing were responsible for studying human excrement of 550 miners, workers, and other people living in polluted areas. When a nearby glass factory heard about their task, they “voluntarily” produced 30 sets of glass equipment that could be used for storing excrement for overnight testing. They then gave the glass equipment to “poor and lower-middle peasants” in various production teams who “automatically” and voluntarily organized to fill them and transport samples to the hospital, according to the hospital’s requirements. This was hard work, the report noted, as it required

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<sup>105</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工作经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 15-16.

working with bad-smelling feces—which smelled worse when sulfuric acid was added and during the summer—but they repeatedly studied Mao’s “old three articles” (老三篇)<sup>106</sup> and “overcame their fears of stinkiness and dirtiness.” In this way, the “revolutionary drive” of the poor and lower-middle peasants was a crucial component to producing knowledge about and ultimately eliminating the “three wastes”. Factory workers were another constituent of “the masses” whose activity was crucial in developing knowledge about and eliminating the “three wastes.” As the Beijing Cooperation Group wrote:

This time, some factories with many “three wastes” problems also took the initiative to participate...a “three wastes” investigation and cooperation team composed of 12 people...was formed. The old workers of Shougang took the initiative to provide the basic information on the “three wastes” of each factory in the district [to the team]. They also provided convenient working conditions. After working hard for more than half a year, we completed the analysis of 43 water samples with more than 3,000 data points...and conducted physical exams in more than 1,000 primary schools...At the same time, they also adhered to Chairman Mao’s revolutionary line...and severely criticized the theory of technological mysticism and the theory of backwardness of the masses (狠批技术神秘论、群众落后论).<sup>107</sup>

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<sup>106</sup> Mao’s “Three Old Articles” are: “Serve the People,” “The Foolish Man Who Removed Mountains,” and “In Memory of Norman Bethune.”

<sup>107</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 16-17.

Factory workers and the lower-class peasantry were not just victims of the pollution but also instrumental in addressing the problem. The “three wastes” were seen as a collective issue that required the cooperation of all classes. The responsibility to do something was democratized.

### *This is Liu Shaoqi's Fault*

The question of who, and “when”, was to blame for pollution problems was much discussed in these reports. This growing knowledge about the state of contemporary pollution in China also recast the past in new terms. In their report, the Revolutionary Committee of Shanghai's Sanitation and Epidemic Prevention Station (上海市卫生防疫站革命委员会) built their own narrative of how Shanghai came to have pollution problems. In their new history of Shanghai's environment, they wrote that before 1949, Shanghai was ruled by the imperialist powers and Guomindang reactionaries. Consequently, there was no management system for urban construction: capitalists set up factories “arbitrarily, everywhere” and discharged harmful waste gas and wastewater, bringing harm to people's health. Chairman Mao, they contended, was actually “very concerned about the health of the people” and this was evident in his 1952 speech at the Second National Health Conference in 1952, citing his phrase, “Mobilize, pay attention to hygiene, reduce diseases, and improve the level of bed care” (动员起来, 讲究卫生, 减少疾病, 提高健床水平). Throughout the 1950s, they wrote, Mao tried to fix unsanitary factories, until the “traitor scab” Liu Shaoqi attempted to subvert the revolution and restore capitalism in Shanghai with his ideas of “production first” and “profit in command”. As a result, 1.2 million tons of industrial wastewater were now being dumped in Shanghai every day. 800,000 tons of domestic sewage were discharged into the Huangpu River, such that Suzhou Creek and Yangpu Port were “black all year round.” Some suburban towns also had colored and

smelly tap water due to industrial wastewater, making many sick. Sulfur dioxide, nitrogen dioxide, chlorine, and hydrogen chloride, were all common gases found throughout the city. Factories in the Beixinjing district (北新泾) affected the grain and vegetables grown across 1,500 mu of land in nearby production brigades. The Party Committee of the “Old” Sanitation Bureau (旧卫生局) was also to blame: they pushed the “three wastes” work out in 1963 and opposed Chairman Mao’s original “prevention first” policy. The anti-pollution campaigns started during the Cultural Revolution in 1970-1971, in this way, were actually framed as marking a return to an earlier ethos before Liu Shaoqi’s “treachery.”<sup>108</sup>

Indeed, many reports pointed fingers at Liu Shaoqi and his counterrevolutionary line. The Air Pollution Investigation Technical Exchange Group’s (大气污染调查技术交流小组) report, titled “Summary of Air Pollution Sanitation Inspection” suggested one answer. Their report claimed that Liu Shaoqi’s “counterrevolutionary revisionist line” was influenced by the “reactionary productivity theory” that “rewarded ‘production first’ and put ‘profit in command’ (利润挂帅)” and thus ignored the dangers of the “three wastes” that had slowly aggregated over the past several decades.<sup>109</sup> The Revolutionary Committee of Shanghai’s Sanitation and Epidemic Prevention Station identified several “erroneous ideas” linked to Liu Shaoqi and his “productivity theories” (生产力论), such as that the “three wastes are difficult to get rid of, the harm of the three wastes is a long-standing problem,” and that “the elimination of the three

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<sup>108</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 18-19.

<sup>109</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 9.

wastes is only a problem for the industrial sector.”<sup>110</sup> Certainly, much mention of Liu Shaoqi was ritualistic and rhetorical. But as a persona non grata, he was a convenient and easy target to blame for the pollution problems that had coalesced over the past several decades.

Countenancing the widespread industrial pollution that scientific investigations increasingly proved existed required a scapegoat in order to avoid blaming Chairman Mao and his policies.

The picture that emerges from these documents is not a Maoist China ideologically blind to the very notion that a socialist country, a priori, could have industrial pollution. By 1971-72, Maoists accepted the existence of environmental problems and blamed Liu Shaoqi and capitalist revisionists within the Party. Whether these claims were accurate or not is beyond my point here: it is clear that by 1970-71 Maoism was not essentially opposed to concerns about environmental pollution and, more than that, had begun to develop its own epistemologies and solutions to the environmental problems that appeared to be plaguing all industrialized nations.

#### **IV. Conclusion**

In the above sections, I have sought to show how at Zhou’s prodding, scientists, cadres, and workers discovered scientific facts about the dangerous side-effects of industrial processes. Zhou’s call to investigate pollution and eliminate the “three wastes” meant that pollution became an *acceptable* problem for China to have. This opened up an entire new arena of governance within China’s biopolitical body and initiated a transformation in the kinds of problems that the Party-state saw itself responsible for managing. Science—as elsewhere around the world—was the main engine that produced knowledge about and solutions to environmental problems. Data, statistics, numbers, and specific measurements from widespread testing of water, soil, air, and

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<sup>110</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange], 201.

biological bodies were marshalled everywhere as both evidence of pollution and evidence of progress.

These efforts were led most visibly by Premier Zhou Enlai, who grew concerned about the dangers of industrialization and urbanization in China by summer 1970. His concerns were drawn largely from his observations of the ongoing global awakening to industrial-environmental problems in developed capitalist countries as well as difficult to ignore incidences of industrial pollution in major cities like Beijing. The ill side-effects of industrialization were no longer unique to capitalist countries, they were now problems common to all developed, industrialized countries regardless of ideology or economic system. This signified the beginning of a “Maoist environmentalism”. This environmentalism would be couched in Maoist terminology and politics, but also drew on existing epistemologies and scientific disciplines like “industrial hygiene” and more recently-developed ideas like “public hazard”, a term borrowed from Japanese discourses to describe problems linked to industrial pollution and urbanization.

Popular or grassroots efforts to protect the environment or to protest against pollution play a protagonist role in the history of environmentalist movements in North America and Europe. “Green” political groups and activist non-governmental were important drivers of an environmentalist consciousness in the West in the 1960s-1970s, pressuring governments to institute pollution laws and environmental agencies. The above Zhou-centered story seems to suggest that broader environmental consciousness appears to have flowed the other direction, with the Party-state—especially the personage of Zhou Enlai—becoming interested in environmental problems, directing what was to be investigated and how it could be known, and setting the political and ideological terms of solutions. However, this is as much a problem of

sources. It is difficult to get evidence of popular attitudes toward or actions about pollution in the Cultural Revolution, except by reading against the grain. Some factory reports, however, do allude to conflict between farmer and worker groups over what to do with toxic waste and the apparent externalities of toxic substances that different social groups felt or experienced—even if they were often framed idiomatically and not scientifically or through environmentalist terminologies.

Lastly, there is some reason to view Zhou's centrality in this story with some caution. From the perspective of post-Mao writers, it would seem desirable to retrospectively exaggerate Zhou's involvement. His reputation survived the transition to Deng Xiaoping intact—as a kind of bulwark against Maoist excesses—and so naturally became a convenient person to link with positive developments that the Party wanted to coopt into Deng's political program. Even so, people paid attention to signals from the Party center during the Cultural Revolution—arguably more so than in any other period. The above analysis of documents produced in 1970-1972 suggests that Zhou was at least a sort of bellwether, raising environmental pollution as a problem and legitimating it as an acceptable problem for China to have. When he called for Maoist revolutionary enthusiasm and epistemic practices in tackling environmental problems, the “masses” responded. In this sense, the mandate to identify the nature and conditions of local pollution problems was given by central organs, but the production of knowledge about specific problems was not their remit. That was a task which involved broader swathes of society—workers, scientists, peasants, medical workers, cadres. This all unsteadies pre-existing narratives that have painted Maoism as wholly introverted and ideologically blind to environmental problems. The PRC, like other countries around the world at the time, accepted the new fact of environmental problems and actively wrestled with them.



## CHAPTER 3 - Encountering the World Environmental Regime: China and the 1972

### UNCHE

#### I. Introduction

This chapter picks up where the last chapter left off in 1972. In particular, I examine the significance of the June 5-16, 1972 UN Conference on the Human Environment (UNCHE) in Stockholm. Western scholars have long observed that the 1972 UNCHE in Stockholm was a critical moment in building the global perception of “common environmental problems” and scientific interpretations of it.<sup>111</sup> Most scholars have focused on the Cold War tensions of the conference and its impact on global environmental diplomacy.<sup>112</sup> There has yet to be an in-depth analysis of China’s participation at the UNCHE and its specific significance, and especially not from the perspective of the Chinese delegation itself. That is what this chapter offers.

I argue that China’s encounter with global transformations and flows of ideas about the environment—like at the 1972 UNCHE—marked not so much the progressive, teleological step of China’s “awakening” to environmental problems. Rather, it marked China’s encounter with the discursive and organizational frameworks of the “world environmental regime.” The significance of this encounter is two-fold. First, and most simply, it *began* the process of entangling China with a hegemonic, global discourse governing the management and conceptualization of environmental problems. When later Chinese or Western scholars say that

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<sup>111</sup> John W. Meyer et al., “The Structuring of a World Environmental Regime, 1870–1990,” *International Organization* 51, no. 4 (1997), 623.

<sup>112</sup> Iris Borowy, “Before UNEP: Who Was in Charge of the Global Environment? The Struggle for Institutional Responsibility 1968–72,” *Journal of Global History* 14, no. 1 (October 4, 2019): 88.

the UNCHE marked the beginning of China’s environmental journey or China’s environmental “awakening”, this, really, is what they are gesturing toward.

Political and social theorist John Dryzek defines environmental discourses as “shared ways of apprehending the world”—languages that allow its speakers to “interpret bits of information and put them together into coherent stories or accounts” as well as to “define common sense and legitimate knowledge.”<sup>113</sup> The project to build an international consensus about the nature of environmental problems and their solutions that grew out of the global environmental turn of the late 1960s and early 1970s constitutes a particular “environmental discourse” that constrained how environmental problems and solutions can be imagined.

Scholars have recognized how the UNCHE institutionalized worldwide a particular discourse about the environment. According to sociologist Ann Hironaka, the UNCHE “forged a broader conception of the environment as an umbrella issue for disparate environmental issues.”<sup>114</sup> Hironaka conceptualizes three different environmental frameworks that emerged as discrete concerns from the 1960s, but contingently came together at the UNCHE, thus structuring the set of environmental anxieties that would hold up the global environmental regime. One of these was the “preservation framework”, which focused on “the protection of beautiful, pristine, or spectacular aspects of nature.” Another was “resource management”, which was focused on the efficient and sustainable use of resources and industrial inputs. The third was about pollution. Recent understandings of transboundary pollution, most notably in Sweden,

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<sup>113</sup> John S. Dryzek, *The Politics of the Earth: Environmental Discourses* (Oxford University Press, USA, 2005), 9.

<sup>114</sup> Ann Hironaka, *Greening the Globe: World Society and Environmental Change* (Cambridge University Press, 2016), 32-37.

meant that pollution was now something that needed to be discussed in the diplomatic realm, and was not merely a local issue.<sup>115</sup>

All of these once-independent concerns—preservation, resource management, and pollution—had also existed in China prior the NCEP to various degrees. The longer story of *huanbao* is in a significant way a story of how these three frameworks that came together to structure the global environmental regime would also eventually be associated together under the umbrella of *huanbao*. But this was not an immediate or seamless process. Initially, Maoist anthropocentrism and preoccupations with production, for example, drove concerns about pollution and resource management closer together, with the preservation of nature and ecological systems for their own sake sitting on the outside looking in. Throughout the remainder of the Mao period, Chinese scientists in related disciplines would argue for the inclusion of ideas like ecology or the biosphere or the importance of preserving natural systems like forests into the *huanbao* project, but often those ideas were couched in their benefits for production or human wellbeing and not for preserving nature for nature’s sake.

Central to all of these frameworks was the scientization of environmental problems, such that science became the lingua franca through which environmental problems and solutions would be identified, known, and globally communicated. According to Hironaka, it was the “scientific agreement on the identification of an objective environmental issue” that importantly “provide[d] a solid basis on which to develop policy structures and institutions” like the UNCHE

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<sup>115</sup> Ann Hironaka, *Greening the Globe: World Society and Environmental Change* (Cambridge University Press, 2016), 32-37.

in the first place.<sup>116</sup> Through constructing a sense of a shared, scientifically-identified types of environmental problems, China's participation in the UNCHE also laid the foundation for deepening connections between China and global flows of scientific and policy knowledge about pollution. It reframed previous work and theorizing about the "three wastes," industrial hygiene, environmental hygiene, and comprehensive utilization as doing *huanbao*. It encouraged Chinese environmental theorists to think about environmental issues on a transregional and global scale. And it encouraged the PRC to eventually unite preservation, resource management, and pollution into one project.

The second significance of the UNCHE was that the very nature of an international summit on the human environment encouraged China's central leadership to place their ongoing theorization of environmental problems in the context of the global Cold War. Contrary to how it has often been portrayed, the PRC did not come to the UNCHE as empty vessels to be filled with global environmentalist knowledge, as if it were a sort of rational intervention against Maoist solipsism by the global community. Historian Sigrid Schmalzer argued that during the development of Chinese science during the Cold War "acts of comparison and contrast...served as causal forces in transforming scientific practice." In her view, the Cold War "created an expectation of ideological difference that was supposed to permeate even science... In China, a specific approach to science based on a cluster of related values—self-reliance, application, mass mobilization, nativism—emerged in a context of perceived isolation from the superpowers and then gained strength through repeated acts of contrast with American and Soviet examples."<sup>117</sup>

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<sup>116</sup> Hironaka, *Greening the Globe: World Society and Environmental Change*, 29. Hironaka argues as well that these scientific "discoveries" about environmental problems were not "single-handedly responsible for the construction of the modern global environmental regime," as pre-existing institutional structures also played a critical role.

<sup>117</sup> Sigrid Schmalzer, "Self-Reliant Science: The Impact of the Cold War on Science in Socialist China," in *Science and Technology in the Global Cold War*, ed. Naomi Oreskes and John Krige (The MIT Press, 2014), 79.

Schmalzer goes on to say that during the course of China's global rapprochement in the 1970s that, unexpectedly, self-reliance "remained a badge of honor for Chinese science; moreover, it was promoted as the basis for a uniquely socialist-Chinese style of science from which other countries could learn."<sup>118</sup> The PRC delegation indeed saw itself as equal stakeholders and pioneers of solutions to the environmental problems that all industrial life created, and that science identified. After all, thinking about industrial hygiene, "comprehensive utilization," the "three wastes," and (more recently) "public hazards" was already ongoing since early 1971.

At the UNCHE, the PRC delegation framed their analyses of environmental issues against others, evaluated the nature of environmental problems not just in China but also in other nations, and sharpened Maoist analyses of the global environmental "crisis". For example, China's encounter with the global environmental regime at the UNCHE encouraged Chinese leadership to consider what past or current activity fit with the theme of the conference and counted as doing "environmental protection". Delegations from developed countries shared their experiences of environmental protection as if it were an inevitable issue intractably tied in with any kind of economic development—as if it were a bare fact of industrial life that had no political or social valence. The Chinese delegation was less ready to accept this framing, seeing their version of socialism as having within it the answers to environmental problems that capitalist systems simply could not effect. The Chinese delegation also observed pro-green movement protests by Western NGOs and activist groups outside the conference hall in Stockholm, which they interpreted as evidence of the intractable contradiction between capitalist monopolist classes and the masses in developed capitalist countries. They saw anti-Vietnam War protestors that framed the Vietnam War in terms of its ecological destruction as evidence for

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<sup>118</sup> Sigrid Schmalzer, "Self-Reliant Science: The Impact of the Cold War on Science in Socialist China," 90-93.

their belief that colonialism and neo-colonialism were the main sources of global environmental degradation. Put differently, attending the UNCHE in the context of the global Cold War invoked the very act of analyzing the nature of environmental problems in other countries and in the world at large. This process helped galvanize their own interpretations of environmental issues at home, which would in turn draw from preexisting Maoist epistemological and scientific practices and values, like: emphasizing social and political obstacles to an environmentally sound human-nature relationship, mass mobilization, public health, production, self-reliance, indigenous knowledge, and mass scientific practices.

This chapter draws on speeches, UN documents, English and Chinese newspapers, and published collections of internal documents regarding the deliberations between central leaders in Beijing and the PRC delegation. It proceeds in three sections. The next section summarizes how the build-up to the 1972 United Nations Conference on the Human Environment was influenced by an alliance of Swedish scientists, diplomats, and government officials. Drawing on recent Swedish experiences with transnational pollution, these people emphasized the need for global collaboration in addressing environmental challenges. Pioneered by influential figures like biochemist Hans Palmstierna and diplomats Sverker Åström and Börje Billner, the Swedish initiative effectively incorporated scientific expertise into global environmental politics, turning environmental discoveries into policy proposals and successfully persuading other nations, including skeptical developing countries, of the necessity of the UNCHE and of scientizing environmental problems more broadly.

Next, in section three, is the bulk of my narrative. It offers an account of the PRC's participation in the UNCHE from the PRC delegation's perspective. Here, I elaborate how the

PRC's preparatory work for the conference reflected Maoist theorizations of environmental problems. I also show how the act and experience of attending the conference itself both instantiated "environmental protection" as the dominant framework for understanding environmental problems in China and how it offered a stimulus to distinguish Chinese approaches to "environmental protection." The chapter concludes with a section analyzing different retrospective interpretations of the UNCHE's significance.

## II. The "Swedish Initiative"

According to Paul Warde, Libby Robin, and Sverker Sörlin, the build-up to the 1972 UNCHE was marked by the "overwhelming centrality of scientific expertise in developing international environmental politics, providing both the means to conceptualize the environment and the authority to justify interventions." They argue that through an "internationally active and restlessly conferencing alliance of scientists [who] sought to shape institutions that could influence policy and arrest environmental destruction," diplomacy, policy, and the environment were created "in tandem." Because of this, they remind us that the "prominence of science and its organizations in understanding the environment was never a 'given'."<sup>119</sup>

Sweden was the lead campaigner to hold the UNCHE, a consequence of the role that Swedish scientists and diplomats played in weaving together the "scientific interpretations" of "common environmental problems" with the "world associational arena."<sup>120</sup> Historian Eric Paglia emphasized the role played by "a nexus of diplomats, scientists and government officials

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<sup>119</sup> Paul Warde, Libby Robin, and Sverker Sörlin, *The Environment: A History of the Idea* (Johns Hopkins University Press, 2018), 165.

<sup>120</sup> Meyer et al., "The Structuring of a World Environmental Regime, 1870–1990," 623.

in Stockholm and New York through which the Swedish initiative emerged and evolved, and eventually culminated in the 1972 UN Conference on the Human Environment.”<sup>121</sup>

As was occurring elsewhere in industrialized nations around the world, there was a nascent environmental debate in Sweden during the mid-late 1960s. These environmental debates increasingly took on a global and transnational perspective, when for example the chemist and soil scientists Svante Odén—the “father of acid rain”—discovered that emissions elsewhere in Europe caused acid rain to fall on Sweden. These scientific discoveries suggested to Swedish environmentalists that environmental problems needed transnational cooperation.<sup>122</sup> Swedish diplomats and scientists furthered the global connecting of the dots of industrial incidences and sense that something was terribly wrong with the human-nature relationship when they led the initial push for a UN conference focused on the “human environment”. Sweden’s leadership role was not merely a diplomatic one, according to Paglia, and Sweden’s “environmental diplomacy was, from the outset, closely coupled with science diplomacy.”<sup>123</sup> According to Warde et al., “Sweden, with its deep involvement in transnational science, tradition of neutrality and internationalism, and strong domestic culture of outdoor life and conservation, saw itself as well placed to undertake a catalytic role.”<sup>124</sup>

In particular, Paglia underlines the roles of Swedish scientists like the biochemist and environmentalist Hans Palmstierna and of Swedish UN diplomats, like Börje Billner, the Deputy

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<sup>121</sup> Eric Paglia, “The Swedish Initiative and the 1972 Stockholm Conference: The Decisive Role of Science Diplomacy in the Emergence of Global Environmental Governance,” *Humanities & Social Sciences Communications* 8, no. 1 (January 5, 2021), <https://www.nature.com/articles/s41599-020-00681-x.pdf>, 7.

<sup>122</sup> David Larsson Heidenblad, “The Big Breakthrough of Environmental Issues in Sweden, Autumn 1967,” *Manchester University Press EBooks*, September 7, 2021, <https://www.manchesteropenhive.com/downloadpdf/9789198557749/9789198557749.00005.pdf>.

<sup>123</sup> Eric Paglia, “The Swedish Initiative and the 1972 Stockholm Conference: The Decisive Role of Science Diplomacy in the Emergence of Global Environmental Governance,” 7.

<sup>124</sup> Warde, Robin, and Sörlin, *The Environment: A History of the Idea*, 164.



Head of Sweden’s UN Mission, and Sverker Åström, Sweden’s Permanent Representative to the UN. This alliance between Sweden’s diplomatic and scientific communities began on March 13, 1968 when Sverker Åström—based at Sweden’s UN mission in New York—requested from the Stockholm office “scientific information from government agencies with knowledge on environmental issues” as part of his campaign to convince other UN states that there were good reasons to hold a global conference on the human environment.<sup>125</sup> A diplomat in Stockholm reached out to Hans Palmstierna, who had just started working at the Swedish Environmental Protection Agency—“the first government authority of its kind in the world in July 1967.” In October 1967, Palmstierna published *Plunder, Famine, Poisoning*, a “bestseller” that raised alarm bells about the degrading relationship between humans and the global environment—an event that Paglia likens to *Silent Spring* in the United States. Palmstierna reportedly shot to national fame after an interview on Sweden’s sole television channel in which “he told the reporter about the ‘hugely complex poisoning we’re being exposed to’,” and warned alarmingly about famine, meat prices, and other dangers of industrialization.<sup>126</sup> As a result, Palmstierna became a Swedish version of Warde and Sörlin’s “meta-specialist”—someone who could “broadly speak on behalf of the environment or a general audience.”<sup>127</sup>

On December 13, 1967, Börje Billner, the Deputy Head of Sweden’s UN Mission, began the formal process of campaigning for the conference with a statement to the UN General Assembly. His statement was an early indication of how the thinking of Swedish scientists like Palmstierna influenced how Swedish diplomats framed the conference—and so environmental

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<sup>125</sup> Paglia, “The Swedish Initiative and the 1972 Stockholm Conference: The Decisive Role of Science Diplomacy in the Emergence of Global Environmental Governance,” 3.

<sup>126</sup> Heidenblad, “The Big Breakthrough of Environmental Issues in Sweden, Autumn 1967.”

<sup>127</sup> Eric Paglia, “The Swedish Initiative and the 1972 Stockholm Conference: The Decisive Role of Science Diplomacy in the Emergence of Global Environmental Governance,” 3.

problems too—for the rest of the international community. Billner’s proposal stated “The impact of the technological revolution that is taking place around us is felt by all peoples, irrespective of their present technological level. It has far-reaching effects on the environment of man. The human body and the human mind are subjected to serious and ever-increasing inconveniences and dangers. These are caused by air pollution, water pollution, sulfur fall-out waste, etc.—in short by all the secondary effects related to the process of industrialization and urbanization.” The main message, as Paglia puts it, was that “technology, urbanization and industrialization [were] the predominant drivers of a degraded human environment.”

Palmstierna’s involvement in the Swedish initiative became more explicit in April 1968, when the Swedish Foreign Ministry commissioned Palmstierna with “producing a memorandum that could articulate the scientific basis for convening a global environmental conference.” The purpose the proposed conference was to “stimulate international interest in the environment, find ways to regulate transnational environmental problems having no specific country of origin, and to combine efforts in managing environmental problems with the work of international development agencies.” Another explicit goal of the conference would be “to help developing countries avoid the costly mistakes made by the nations of the global North in the course of their own industrialization.” The resulting memorandum by Palmstierna provided the scientific authority and evidence that would be crucial for Åström and other Swedish diplomats when trying to persuade other nations of the necessity of the conference. In this way, “diplomatically effective environmental knowledge”—knowledge that convince an “indifferent or skeptical lay audience”—was “co-product[ed]” by Swedish diplomats and scientists.<sup>128</sup>

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<sup>128</sup> Paglia, “The Swedish Initiative and the 1972 Stockholm Conference: The Decisive Role of Science Diplomacy in the Emergence of Global Environmental Governance,” 3-8.

Many developing countries were already skeptical. Some believed the conference could be used by the global North to prevent developing countries from developing further by arguing that their growth had to be curtailed to protect the environment. However, Sweden's framing of the crisis facing the human environment in scientific terms ultimately helped to persuade the skeptics. The famous June 1971 Founex report also played a role, as it "concluded that environmental protection and economic development were not intrinsically incompatible."

In May 1968, Sweden issued a formal proposal to the UN for a global conference. Their proposal stated plainly that "the changes in the natural surroundings, brought about by man, had become an urgent problem for developed as well as developing countries, and that these problems could only be solved through international co-operation." At the 1733<sup>rd</sup> plenary meeting in December 1968, Åström gave a "scientifically detailed" speech informed by Palmstierna's main points, and the General Assembly ratified the proposal for the conference (UNGA 2398), which they hoped would "provide a framework for comprehensive consideration within the United Nations of the problems of the human environment."<sup>129</sup> Because Sweden led the initial proposal, it also offered to host the conference. The conference was ultimately held in Stockholm from June 5-16, 1972 as the first ever UN Conference on the Human Environment.

### **III. The PRC at the 1972 UNCHE**

#### *Preparing the Delegation*

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<sup>129</sup> Paglia, "The Swedish Initiative and the 1972 Stockholm Conference: The Decisive Role of Science Diplomacy in the Emergence of Global Environmental Governance," 4-7; UN General Assembly (23rd session: 1968), Resolution 2398, Problems of the human environment, A/RES/2398(XXIII), (September 24-December 21, 1968), <https://digitallibrary.un.org/record/202554?ln=en>.

Even though 114 nations attended the UNCHE, the Soviet Union and other Warsaw Pact nations did not. This was done in protest against the decision that East Germany was not allowed to participate. The PRC, however, had just joined the UN after the October 1971 United Nations General Assembly Resolution 2758, which recognized the PRC as the sole legitimate representative of China to the United Nations. Because of this, the PRC did not play a role in the planning or preparatory work for the conference, but was able to send a delegation.

The UN Secretary-General's invitation to the PRC requested "that government delegations should consist of persons at the policy-making level, including political leaders and senior administrative officials, supplemented by a lesser number of technical advisers, economic experts, material designers and other social scientists with extensive exposure to major environmental issues, and possibly opinion makers."<sup>130</sup> Premier Zhou Enlai responded by sending a high-level delegation with the instructions to "understand the world's environmental conditions and the impact of environmental problems in various countries on economic and social development, and to use the conference as a mirror to understand China's environmental problems."<sup>131</sup>

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<sup>130</sup> "Lianheguo mishuzhang jiu yaoqing Zhongguo canjia Lianheguo renlei huanjing huiyi gei Zhongguo waijiaobuzhang de zhaohui联合国秘书长就邀请中国参加联合国 人类环境会议给中国外交部长的照会" ["Note from the Secretary-General of the United Nations to the Minister of Foreign Affairs of China on the invitation to China to participate in the United Nations Conference on the Human Environment"], in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, ed. Qu Geping曲格平, and Peng Jinxin彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 200-202.

<sup>131</sup> "Zhou Enlai zongli dui chuxi renlei huanjing huiyi de pishi周恩来总理对出席人类环境会议的批示" ["Premier Zhou Enlai's Instructions on Attending the UN Conference on the Human Environment"], *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, ed. Qu Geping曲格平, and Peng Jinxin彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 206.

Originally, the Ministry of Foreign Affairs and the Ministry of Health had sent requests to Zhou Enlai to take the lead at the UNCHE. Given that the Ministry of Health had been invoked by Zhou Enlai throughout 1970-1972 as being a principal ministry relevant to dealing with pollution problems—though he sometimes mentioned others like the Ministries of Agriculture and Forestry—it is not surprising that they assumed that they would be the main participants.<sup>132</sup> The Ministry of Health had also been responsible for issuing Document 131 in April 1971, which as the previous chapter documented, was the first official mandate that called for the nationwide investigation into industrial pollution and the “three wastes”. By December 1971, though, Zhou had apparently determined that environmental problems were “not only a health issue, but involves all aspects of the national economy” and that they should instead send a “comprehensive group of management departments.”

As a result, the State Council built a 40-member delegation that was led by Tang Ke (唐克), the Vice Minister of the Ministry of Chemical Industry, and Gu Ming (顾明), the Deputy Director of the National Planning Commission. They were accompanied by a diverse group of officials from a wide array of different bureaucracies and professions, like Chen Haifeng (陈海峰), a bureau-level cadre and deputy leader of the Ministry of Health; Yu Songshun (虞颂舜), vice president of the First Design Institute of the Ministry of Light Industry; Mai Yongbin (买永

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<sup>132</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Talks and Speeches on Environmental Protection],” March 1977, in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平, and Peng Jinxin 彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 464.

彬), a head researcher at the Institute of Biology from the Ministry of Agriculture and Forestry; Shi Jide (史济德), a doctor at the Shanghai Health and Epidemic Prevention Station; Liu Dun (刘敦), an engineer at the Second Beijing Chemical Plant, and Yang Quanxing (杨全兴), an assistant of the Scientific Research Section of the First Research Institute of the Oceanic Administration—to name but a few. Overall, the delegation was broken down accordingly:

State Planning Commission: 3

Ministry of Foreign Affairs: 5

Ministry of Chemical Industry: 4

Ministry of Health: 6

Ministry of Metallurgy: 2

Ministry of Industrial Machinery: 1

Ministry of Light Industry: 2

Ministry of Agriculture and Forestry: 1

State Oceanic Administration: 1

Beijing Municipality: 3

Shanghai Municipality: 2

Translators, alternates, and secretaries rounded out the delegation.<sup>133</sup> This collection of ministries and individuals shows the wide range of bureaucratic realms of governance that central Party leaders understood pollution and other environmental problems to impinge upon, implicating different realms of human experience. Many of these ministries had already been mobilized for industrial hygiene and “three wastes” work in the 18 months prior to the UNCHE, showing how central leaders linked that campaign with the stated goals of the conference. It is clear from this list also that concerns about wildlife and nature conservation were far down on the PRC’s list of priorities.

Though the workshops and reports that followed from the investigations of Document 131 were sourced nationwide, Beijing and Shanghai certainly played outsized roles—almost half of the 59 reports were from those two cities. Investigations into pollution issues in the industrial-human landscapes of Beijing and Shanghai meant that they played important laboratory roles in the construction of knowledge about the dangerous natures of urban environments. Throughout the 1970s, their experiences were shared around the nation; scientists and cadres from other places were also often sent to Beijing and Shanghai to learn from experts there. In this sense, these two cities were important early conduits in the geography of knowledge production as it

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<sup>133</sup> Waijiaobu, ranhua bu外交部、燃化部 [Ministry of Foreign Affairs, Ministry of Ministry of Chemical Industry], “外交部、燃化部关于参加人类环境会议代表团人员组成的请示 [Instructions from the Ministry of Foreign Affairs and the Ministry of Chemical Industry regarding the composition of the delegation to the UN Conference on the Human Environment]”, May 16, 1972, in *环境觉醒: 人类环境会议和中国第一次环境保护会议* [*Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection*], ed. Qu Geping曲格平, and Peng Jinxin彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 204-205.

related to environmental problems. It is thus not surprising that those two municipalities, over all others, were able to send their own representatives to the UNCHE.

A May 21, 1972 document from the Ministry of Fuel and Chemicals and Ministry of Foreign Affairs (“外交部,燃化部关于出席人类环境会议方案的请示”) confirming with the State Council their plans for the UNCHE sheds light on various aspects of how the Chinese delegation approached the conference. It reveals how PRC leadership interpreted the causes of and responses to environmental problems around the world. It also reveals how they wanted the delegation to represent China’s environmental problems to an international forum.

Maoist theory and forms of analysis—like dialectical materialism—framed both the delegation’s interpretation of environmental problems in China and environmental problems elsewhere. Using “Chairman Mao’s revolutionary diplomatic line” (毛主席的革命外交路线), the two lead ministries identified four main “contradictions” that they expected to encounter at the UNCHE:

- (1) the contradiction between developed and developing countries.
- (2) contradictions between large, developed countries, “mainly the United States,” and countries victimized by their pollution.
- (3) contradictions caused by nuclear tests by nuclear armed countries (especially the United States and the Soviet Union).



(4) contradictions within developed industrialized countries in which the masses were pitted against the pollutive activity of capitalist monopolists.

As to the first contradiction, the Chinese delegation was from the beginning suspicious of the United States and other developed nations' intentions at Stockholm. Despite claims from Western media (both at the time and later) that it was the PRC delegation that was "politicizing" environmental protection, the PRC delegation made the same judgment about the United States and other capitalist, "imperialist" countries. That is, they interpreted the conference's pretensions as an international forum for confronting a common issue facing all of humanity as likely an excuse for the United States and other hegemonic countries to further their hegemony.

The problems of environmental pollution in the United States, Britain, Japan, West Germany, and the Soviet Union are very serious, the people are increasingly dissatisfied....Therefore, although environmental conferences appear to be professional conferences, with the purpose of exchanging experience and seeking international cooperation on environmental issues, in essence they must reflect the current international political struggle, mainly the struggle between control and anti-control (主要是控制与反控制的斗争).<sup>134</sup>

According to the planning report, these apprehensions were partly founded on Nixon's recent foreign policy report that framed environmental issues as a "new field of diplomacy" and that specifically called for environmental conferences as a diplomatic tool. The delegation noted that

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<sup>134</sup> The inclusion of the Soviet Union as a revisionist empire is unsurprising given the state of Sino-Soviet relations in 1972. Though the Soviet Union did not attend the UNCHE, it was included here as the Soviet Union's boycott was not yet confirmed by May 21: there were still ongoing negotiations about whether to include East Germany.

the United States had pledged \$100 million to support a special agency to coordinate international cooperation for environmental protection, which they saw as “using the old technique of ‘aid’ to achieve the goal of intervention and control.” The shared draft of the planned Stockholm Declaration itself became a target of the PRC delegation due to the same suspicions. The delegation critiqued the draft because its “preamble discusses environmental issues in general, but avoids talking about the essence and root causes of the problems.” That is to say, many of its articles “did not point out the responsibility of imperialism for causing environmental pollution, and did not clearly reflect the requirements of independence and self-reliance of all countries and the development of national economy.”<sup>135</sup>

The delegation had similarly been informed beforehand that other developing countries were “dissatisfied” with the draft declaration, and so planned to seek leadership in advocating for revisions—which they did. The delegation explicitly aimed from the outset to represent the Third World and developing nations more broadly. Tang Ke stated that he planned to associate China’s interests with those of developing Asian, African, and Latin American countries. More specifically, this meant pointing out that developing and developed countries ought to have different environmental standards and regulations (with the latter being stricter), that capitalism and imperialism were disproportionately responsible for environmental pollution, and that developing countries had a right to prioritize their economic growth and national sovereignty over imperatives to protect their environment. This was an anticipation of Indira Gandhi’s

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<sup>135</sup> Waijiaobu, ranliao huaxue gongye bu外交部, 燃料化学工业部 [Ministry of Foreign Affairs, Ministry of Fuel Chemical Industry], “外交部清燃化部关于出席人类环境会议方案的请示 [Request for Instructions from of the Ministry of Foreign Affairs and the Ministry of Fuel Chemical Industry to Attend the Conference on the Human Environment],” May 21, 1972, in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping曲格平, and Peng Jinxin彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 207-212.

position which made similar claims about the need to recognize the different natures of pollution caused by developed countries and the pollution caused by impoverished ones. Developed countries and the initial draft of the Declaration suggested that rapid population growth was responsible for many environmental problems, which the PRC delegation planned to oppose.

As to the second contradiction, the ongoing Vietnam War provided the context for the PRC delegation's critique of the United States and the war's effect on southeast Asia's environment. Lead delegate Tang Ke stated explicitly that central leaders "instructed that we should first focus on the issue of America's destruction of the Indochina environment."<sup>136</sup> In their later summary report, the delegation claimed that "the Central Committee...made specific revisions and supplements to the speech of the head of the delegation."<sup>137</sup> The delegation planned also to denounce it as "shameful" and "illegal" that South Korea and South Vietnam were allowed to participate. In the preparation report, Tang Ke wrote that he planned to say in his opening speech that "only the Democratic People's Republic of Korea can represent the Korean people, only the Democratic People's Republic of Vietnam and the Provisional

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<sup>136</sup> Waijiaobu, ranliao huaxue gongye bu外交部, 燃料化学工业部 [Ministry of Foreign Affairs, Ministry of Fuel Chemical Industry], "外交部清燃化部关于出席人类环境会议方案的请示 [Request for Instructions from of the Ministry of Foreign Affairs and the Ministry of Fuel Chemical Industry to Attend the Conference on the Human Environment]," 207.

<sup>137</sup> Chuxi lianheguo renlei huanjing huiyi daibiaotuan出席联合国人类环境会议代表团 [Delegation to the United Nations Conference on the Human Environment] "中国代表团出席人类环境会议情况的总结报告 [Summary Report on the Chinese Delegation's Attendance at the Human Environment Conference]," August 30, 1972, in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, ed. Qu Geping曲格平, and Peng Jinxin彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 214.

Revolutionary Government of the Republic of South Vietnam can represent the Vietnamese people.”<sup>138</sup>

The third contradiction, about the environmental dangers of nuclear tests, would also be an important issue during the conference. The Chinese delegation planned to critique the nuclear testing and stockpiling of superpowers, while defending their own nuclear weapons program as defensive and only retaliatory in nature. The fourth contradiction analyzed environmental issues within developed countries using Marxist class analysis. The delegation understood popular environmentalist movements in developed countries—the thousands of people who suddenly “came out of the woodwork talking about ecology” according to Alaska Senator Ted Stevens in 1969—as evidence of this contradiction. Though mostly confined “to the margins” outside the newly-built Stockholmsmässan exhibition halls, various protest groups were still highly visible and “set up alternative camps, discussion groups, and gatherings.”<sup>139</sup>

Lastly, Tang Ke stated that he planned to present China’s experiences dealing with environmental problems at the UNCHE by discussing work done in China to fight against the “three wastes,” principles of comprehensive utilization (*zonghe liyong*) and to use the cities of Daqing and Shanghai as examples as to the types of environmental issues encountered when establishing new factory areas and transforming old ones. Tang Ke planned to present China’s exemplary experience with these topics through “a few films, documentaries and some picture

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<sup>138</sup>Waijiaobu, ranliao huaxue gongye bu 外交部, 燃料化学工业部 [Ministry of Foreign Affairs, Ministry of Fuel Chemical Industry], “外交部清燃化部关于出席人类环境会议方案的请示 [Request for Instructions from of the Ministry of Foreign Affairs and the Ministry of Fuel Chemical Industry to Attend the Conference on the Human Environment],” 211.

<sup>139</sup> Carl Death, “Disrupting Global Governance: Protest at Environmental Conferences from 1972 to 2012,” *Global Governance* 21, no. 4 (August 19, 2015): 584.

materials.”<sup>140</sup> That the delegation explicitly connected this work as falling within the domain of the theme of the conference, “the human environment,” shows how the exigencies of attending the conference impelled together previously independent disciplines and practices aimed at confronting environmental and medical problems related to industrialization. It shows furthermore that while the delegation came with a mandate from Zhou Enlai to learn from the experiences of others, they also believed that they had something to teach the rest of the world.

*Stockholmsmässan Trade Fair Hall, Stockholm, late May-June 1972*

According to Qu Geping’s memoirs, the PRC delegation arrived in Stockholm in two main groups in the last week of May 1972. A small group led by Bi Jilong (毕季龙) left Beijing on May 26 to conduct preparatory work, like finding simultaneous Chinese interpreters.<sup>141</sup> Bi Jilong at the time was the Deputy Director of the Ministry of Foreign Affairs and also worked at the State Council Group for Plan Drafting along with Qu Geping. The bulk of the delegation came on May 30, led by Tang Ke and Gu Ming. On June 1, Bi Jilong met with representatives from developing and developed countries regarding the text of the draft of the Declaration, which had been drafted by a smaller group of countries before the conference began. A June 4 article in *People’s Daily* covered Tang Ke’s interview with foreign media, quoting him as saying, “We still lack experience in maintaining and improving the environment. We are willing

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<sup>140</sup> I have not been able to locate this media. The UN audiovisual archive does not hold them. Waijiaobu, ranliao huaxue gongye bu外交部, 燃料化学工业部 [Ministry of Foreign Affairs, Ministry of Fuel Chemical Industry], “外交部清燃化部关于出席人类环境会议方案的请示 [Request for Instructions from of the Ministry of Foreign Affairs and the Ministry of Fuel Chemical Industry to Attend the Conference on the Human Environment],” 212.

<sup>141</sup> “Zhongguo daibiaotuan renlei huanjing huiyi dashiji中国代表团人类环境会议大事记 [Record of Events of the Chinese Delegation at the Conference for the Human Environment],” in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu, Geping曲格平, and Peng Jinxin 彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 175.

to learn from all the good experiences of countries in the world in maintaining and improving the human environment, especially the good experience of Sweden, the host country of the conference.”

As China had just joined the UN, it did not participate in this preparatory work. Apparently, a wide variety of countries expressed “varying degrees of dissatisfaction” with the original text in meetings with Bi Jilong. This suggested to Bi that revising the Declaration should be an issue of Chinese leadership for developing nations. Later on the afternoon of June 1, Canadian, British, and Swedish representatives approached Bi, emphasizing to him that the draft Declaration was already carefully negotiated between developed and developing nations such that “as long as one brick of it is moved, the whole building will collapse down.” This did not deter the Chinese delegation’s desire to renegotiate the Declaration on the premise that all countries needed to be consulted on it for it to credibly represent a global perspective on environmental problems. The remaining week in the buildup to the conference involved banquets and informal meetings with other participants to gauge their views on various issues that were expected to come up at the conference itself, like nuclear testing and revisions of some principles in the Declaration.<sup>142</sup>

Reflecting on what he observed at the conference in September 1972, Swedish environmentalist and scholar Lars Emmelin described a lively scene inside and outside the conference hall:

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<sup>142</sup> “Zhongguo daibiaotuan renlei huanjing huiyi dashiji 中国代表团人类环境会议大事记 [Record of Events of the Chinese Delegation at the Conference for the Human Environment]”, 170.

For two weeks in June, Stockholm enjoyed a heat wave and the carnival air created by the invasion of thousands of people-delegates to the UN Conference on the Human Environment, UN staff, journalists, environmental activists and policemen. Activities went on day and night in the three meeting places of the official Conference, at the various alternative conferences held by groups from all over the globe, in art galleries, in the streets and at the Skarpnack airfield, where the city of Stockholm provided lodging for activists in rows of army tents.<sup>143</sup>

After the opening ceremony on June 5, the representatives of 113 nations “plunged into the pile of papers that had been put before them”—and the conference began.<sup>144</sup>

### *The PRC Delegation Speaks*

On the third day of proceedings, on June 8, Bi Jilong gave a speech wherein he called for a special Working Group to rework the draft Declaration on the Human Environment which had been hammered out by a smaller group of 27 countries before the conference. The PRC delegation’s argument for reconsidering the Declaration drew from the universal pretenses of the conference. According to Qu Geping, the delegation claimed that since environmental problems affect everyone in the world, the main document coming from the conference ought to reflect the views and input of *all* nations and not just those of the 27-member Preparatory Committee.<sup>145</sup> Bi said:

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<sup>143</sup> Lars Emmelin, “The Stockholm Conferences,” *Ambio* 1, no. 4 (September 1972): 135.

<sup>144</sup> Tim E. J. Campbell, “The Political Meaning of Stockholm: Third World Participation in the Environment Conference Process,” *Stanford Journal of International Studies*, no. 8 (1973): 144.

<sup>145</sup> “Guanyu 《Renlei Huanjing xuanyan》 douzheng Jingguo gaiyao关于《人类环境宣言》斗争经过概要 [Summary of the struggle over the Declaration on the Human Environment]”, in *环境觉醒: 人类环境会议和中国第*

The “Declaration on the Human Environment” is an important programmatic document, and it is also the main document to be discussed at this environmental conference. It is related to the interests of the people of all countries in the world, and it is related to the responsibilities and actions that governments should undertake in maintaining and improving the human environment. For such an important issue, we must take it seriously and discuss it extensively. Only by making the declaration reflect the opinions of the majority of countries and gain the support of the majority of countries can it produce political and moral effects. Otherwise, even if it is barely passed, it is just a dead letter. It is in this spirit that the Chinese delegation puts forward our proposal.<sup>146</sup>

This proposal set the conference abuzz. Many representatives of developed countries thought this “signaled the end of any international agreement” and tried to convince other delegations that discussions “could not be reopened.”<sup>147</sup>

Bi followed his proposal to rework the Declaration with a speech the next day, on June 9. Bi laid out the ten preliminary issues that the PRC delegation hoped would guide his call for draft revisions. These encompassed a variety of issues, though preserving national sovereignty

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一次环境保护会议 [*Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection*], ed. Qu Geping 曲格平, and Peng Jinxin 彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 182.

<sup>146</sup> “Bi Jilong daibiao zai xuanyan gongzuo zu hui yi shang guanyu zhongguo dui huanjing xuanyan jiben lichang zhuyao guandian de fayan 毕季龙代表在宣言工作组会议上关于中国对《人类环境宣言》基本立场和主要观点的发言” [Speech by Representative Bi Jilong at the Declaration Working Group Meeting on China's Basic Position and Main Views on the Declaration on the Human Environment], June 9, 1972, in *环境觉醒: 人类环境会议和中国第一次环境保护会议* [*Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection*], ed. Qu Geping 曲格平, and Peng Jinxin 彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 15-17.

<sup>147</sup> Campbell, “The Political Meaning of Stockholm: Third World Participation in the Environment Conference Process,” 150.



and condemning colonialism and imperialism were clear underlying themes. Bi asked for a declaration that reflected the following ideas:

- (1) Environmental problems for developing and developed nations were “different in nature” and each nation should formulate policies according to their own conditions.
- (2) Overpopulation is not a source of environmental problems.
- (3) The “root causes of environmental pollution are social,” namely: “we believe that the main social root causes of this situation are the development from capitalism to imperialism and monopoly capital groups. Pursuing high profits, they produce serious anarchy, disregard people's life and death, arbitrarily discharge harmful substances, and pollute and poison.”
- (4) Natural resources should be used according to a nation’s own “economic development needs” and should be protected against imperialism and “neo-colonialism”.
- (5) “The discharge of toxic substances” should be stopped, especially if done in a nation other than one’s own.
- (6) Those suffering from external pollution should be compensated.
- (7) Governments should exchange advanced science and technology “related to environmental protection” which should not be “monopolized by one or two countries”.
- (8) International funds for improving the environment should mostly come from developed countries that were mostly responsible for “seriously polluting the international environment”.
- (9) The UN should establish permanent international environmental institutions.

- (10) Any international environmental agreement should respect the sovereignty of all countries.

Many developing nations found his objections “politically and ideologically reasonable” and “were in favor of reopening debate on the Declaration.”<sup>148</sup>

The next day, on June 10, the Chinese lead delegate Tang Ke asked for the floor. Tang’s first speech is often viewed primarily through the lens of Cold War geopolitics and the Vietnam War as a critique of the United States and the Soviet Union.<sup>149</sup> Instead, I want here to read it for what it says about the PRC’s interpretation of environmental problems. Tang opened his speech as promised in his preparatory report, by condemning the presence of South Korea and South Vietnam, stressing that only the DPRK could represent the Korean people. He then acknowledged that he accepted some of the universalist pretensions of the UNCHE:

Mr. Chairman, dear Representatives: nowadays, in more and more areas of the world, the human environment is polluted and destroyed, and some have even formed serious social problems. The air is poisoned and the amount of garbage is disastrous. Rivers and oceans are polluted, which affects the growth and reproduction of animals and plants, hinders economic development, seriously threatens and damages the health of people, and cannot but arouse the deep concern of people all over the world. Maintaining and improving the human environment and fighting against pollution have become an urgent task to ensure the healthy development of human beings.

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<sup>148</sup> Campbell, “The Political Meaning of Stockholm: Third World Participation in the Environment Conference Process,” 150-151.

<sup>149</sup> Gladwin Hill, “China Denounces U.S. on Pollution,” *The New York Times*, June 11, 1972.

Using the term “public hazard” (*gonghai*) recently adapted from Japanese discourses on environmental problems in their country, Tang next stated the PRC’s assessment of why environmental problems now had a specific global or transnational character, saying “public hazards in certain areas are becoming more and more serious at present and are becoming a prominent problem is mainly caused by the development of capitalism to imperialism, especially the crazy pursuit of the policy of plunder, aggression, and war by the superpowers.” He went on to highlight the ecological effects of the United States’ prosecution of the Vietnam War.

In South Vietnam, Laos, and, more recently, in northern Vietnam, chemical agents and poisonous gas are constantly being used. Such barbaric violence by the United States has endangered the lives of a large number of innocent old people, women, and children, and caused unprecedented serious damage to the human environment. Numerous houses have been turned into ruins, large tracts of fertile land are riddled with bomb craters, river sources have been poisoned, forests and crops have been destroyed, and some creatures are in danger of extinction. Such appalling atrocities committed by U.S. imperialism cannot but arouse the great indignation of the people of the world and all those engaged in the protection of the human environment.<sup>150</sup>

The Chinese delegation’s critique of the Vietnam War, explicitly planned before the conference, is sometimes taken by scholars studying the 1972 UNCHE as evidence of the PRC’s “politicization” of a conference that was ostensibly apolitical. Many developed countries

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<sup>150</sup> “Tang ke tuanzhang zai renlei huanjing huiyi quanti huiyi shang de fayan (yi) 唐克团长在人类环境会议全体会议上的发言（一） [Speech by Chairman Tang Ke at the Plenary Session of the Conference on the Human Environment (1)],” June 10, 1972, in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平, and Peng Jinxin 彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 3.

believed the premise of the conference was about establishing environmental problems as an apolitical common denominator of industrialized humanity. According to this logic, the nature of environmental problems would be the same for any and all sociopolitical forms of industrialized nations. For example, environmental politics scholar Carl Death framed the PRC's actions at the 1972 UNCHE as cynical and focused largely on geopolitical issues, writing only of Tang's speech that "Beijing took the opportunity to stridently criticize the United States over the escalation of the Vietnam War."<sup>151</sup> According to researchers at the Stockholm International Peace Research Institute, Tang Ke's comments were an obstacle to the broader ecumenical spirit of the conference that was meant to tear down political walls:

A Chinese delegate gave a highly politicized speech at the Stockholm Conference, focusing more on cold war politics than the human environment. The speech branded any infringement on China's and other developing countries' sovereignty as a continuation of imperialist practices.<sup>152</sup>

Likewise, Tim E. J. Campbell characterized the Chinese delegation's behavior, especially in the second week of the conference, as reflecting a "hardened Maoist line" that he had to guess came from the delegation's contact with "Peking". Campbell cited an excerpt of Tang Ke's speech that he interpreted as the PRC blaming environmental deterioration solely on "neo-colonialist and colonialist superpowers."<sup>153</sup> At least a few contemporary observers did credit China's participation. Reflecting on his observations of the conference, Lars-Goran Engfeldt, the

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<sup>151</sup> Death, "Disrupting Global Governance: Protest at Environmental Conferences from 1972 to 2012," 583.

<sup>152</sup> Malin Mobjörk and Eva Lövbrand, eds., *Anthropocene (In)Securities: Reflections on Collective Survival 50 Years After the Stockholm Conference* (Oxford University Press, 2021), 28.

<sup>153</sup> Campbell, "The Political Meaning of Stockholm: Third World Participation in the Environment Conference Process," 151.

Ambassador and former Chief Negotiator for global environment and sustainable development issues for the Swedish Foreign Ministry, stated that he believed that China took a “positive attitude toward the involvement of the United Nations in the struggle for a better environment” in Stockholm. He praised China for its “conciliatory attitude,” though warned that it could not be taken for granted as there always remained the possibility that China will revert to dogmatic Maoism and “take a tougher line” in the future.<sup>154</sup>

The PRC delegation was not the only one to criticize the environmental consequences of the Vietnam War. Several days prior to Tang Ke’s speech, Swedish Prime Minister Olof Palme also delivered a statement indirectly criticizing the war for what he called “ecocide”, stating “The immense destruction brought about by indiscriminate bombing, by large-scale use of bulldozers and herbicides, is an outrage sometimes described as ecocide, which requires urgent international attention.” There were also many activist groups and environmental NGOs stationed outside the *Stockholmsmässan* that framed the Vietnam War in environmentalist terms. According to Lars Emmelin, “The Indochina war was dealt with extensively by the People's Forum [an activist group stationed outside the conference]. Principal speakers were the U.S. biologists Arthur Westing and E. W. Pfeiffer who showed films demonstrating the damage done to the environment of South Vietnam by bombing, spraying of defoliants and bulldozing of forests.”<sup>155</sup>

Even ignoring that Tang Ke’s comments about the environmental destruction caused by the Vietnam War were empirically quite right, these disagreements highlight different premises

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<sup>154</sup> Lars-Göran Engfeldt, “The United Nations and the Human Environment – Some Experiences,” *International Organization* 27, no. 3 (summer 1973): 411.

<sup>155</sup> Emmelin, “The Stockholm Conferences,” 140.

of what the conference should be about. Pamela Chasek wrote retrospectively that one of the main significances of the UNCHE was that it “stress[ed] that environmental issues are inherently political—not just scientific and technical—as many policymakers previously thought—and therefore need political negotiations and decision-making.”<sup>156</sup> What “political” really means here is diplomatic. Most developed nations at the UNCHE, including the US, only saw global environmental problems as political in nature insofar as it was about developing the international institutional and legal frameworks to confront transnational environmental problems. That is, to use international politics to actually foreclose other kinds of political analyses and cultivate a sense of a united humanity facing a universal problem. Such attempts to outflank social and political analyses of environmental problems by framing any effort to privilege them as “highly politicized” and so undermining the universalist pretensions of “environmental protection” arose during the conference itself. Responding to Tang Ke’s June 10<sup>th</sup> speech criticizing the US war in Vietnam, a representative from the United States delegation said on June 12<sup>th</sup> that Tang’s speech was “abuse” and “had nothing to do” with the agenda of the conference. Russell Train, the lead representative of the US delegation, responded the same way to Olof Palme’s criticisms, proclaiming that “The United States strongly objects to what it considers a gratuitous politicizing of our environmental discussions.” Train added that he regretted “‘the political and ideological invective’ of the Chinese.”<sup>157</sup> He proclaimed furthermore that he is “an environmentalist, not a politician.”<sup>158</sup>

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<sup>156</sup> Pamela Chasek, “Stockholm and the Birth of Environmental Diplomacy,” International Institute for Sustainable Development, September 10, 2020, <https://www.iisd.org/articles/deep-dive/stockholm-and-birth-environmental-diplomacy>.

<sup>157</sup> “Politics Threatens U.N. Conference,” *South China Morning Post*, June 14, 1972.

<sup>158</sup> Gladwin Hill, “U.S., at U.N. Parley on Environment, Rebukes Sweden for ‘Politicizing’ Talks,” *The New York Times*, June 8, 1972.

American and international newspaper media covering the conference took a similar stance. A June 11, 1972 *Washington Post* report by Claire Sterling stated that the Chinese delegation was “singularly mischievous” in how its calls for condemning the Vietnam War and for a renegotiation of the draft Declaration “would almost certainly kill any chances of agreement.” A few days later in a June 14 article, Claire Sterling reported that the conference was “in shambles” after Tang’s “tirade,” which had “disrupt[ed] hopes for unity.” *The Jerusalem Post* made similar critiques of Tang Ke’s speech and call to add a paragraph to the draft Declaration that would condemn the Soviet Union and the United States. A June 14 article titled “China brings politics into ecology talks” accused the Chinese delegation of attempting to “inject politics into the proceedings.” A June 13 article published by the *South China Morning Post* opened, “What some of the world seems to have trouble agreeing about is how to save humanity from itself or even – as China insisted today on prolonging a political quarrel with the United States – how to save the Conference.” The article went on to say that it was “depressing” that the Chinese “refused to stick to environment and leave politics to the General Assembly in New York.” Tang Ke denied these accusations later, in his June 16 speech, stating “The U.S. representative said on the 12th that our statement on the 10th condemning the crime of U.S. imperialism was ‘abuse’ and ‘has nothing to do with our agenda.’ This is not true and not worth refuting.”<sup>159</sup>

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<sup>159</sup> “Tang ke tuanzhang zai renlei huanjing huiyi quanti huiyi shang de fayan (er)唐克团长在人类环境会议全体会议上的发言（二） [Speech by Chairman Tang Ke at the Plenary Session of the Conference on the Human Environment (2)],” June 16, 1972, in *环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平, and Peng Jinxin 彭近新 (中国环境科学出版社 [China Environmental Science Press], 2010), 9.

However, for the Chinese delegation (and for many other delegations from developing nations), “politics” played a much different analytical role. Environmental problems were indeed “inherently political”, though not because the world’s nations needed to be diplomatically mobilized to confront it. Hironaka argued that the UNCHE marked the beginning of a “new cultural framework” that “reimagined disturbances in remote parts of the environment as interlinked and potentially disruptive to components of the ecosystem of more direct concern to humans.”<sup>160</sup> “Politics” in this framework became merely questions of transnational diplomatic cooperation, and not a reason for *why* environmental problems occurred or might be prevented. It was this thesis that the PRC delegation found unacceptable. This can be witnessed in how, in his June 10<sup>th</sup> speech, Tang immediately linked his critique of the Vietnam War into a broader critique of colonialism and capitalism:

Imperialism, old and new colonialism and their monopoly capital groups, in pursuit of high profits, regardless of the life and death of the people, crazily plunder and exploit, destroy resources, discharge harmful substances indiscriminately, and pollute and poison the environment of their own countries and other countries.<sup>161</sup>

Tang Ke’s critique here is directed at answering the question that he thought the conference posed: *not* what causes environmental problems generally (industrialization), but what *particularly* had caused global environmental problems by the year 1972. This point in particular has sometimes been misinterpreted as meaning that Tang Ke argued flatly and unequivocally

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<sup>160</sup> Ann Hironaka, *Greening the Globe: World Society and Environmental Change* (Cambridge University Press, 2016), 26-27.

<sup>161</sup> “Tang ke tuanzhang zai renlei huanjing huiyi quanti huiyi shang de fayan (yi) 唐克团长在人类环境会议全体会议上的发言（一） [Speech by Chairman Tang Ke at the Plenary Session of the Conference on the Human Environment (1)],” 4.



that “pollution was a product of capitalism, not socialism.”<sup>162</sup> The Vietnam War and the existence of the conference itself already confirmed and gave further boost to their interpretations of the social roots of global pollution. This tension should not be misinterpreted as Tang claiming that environmental problems do not exist in China, or socialist societies in general. The nationwide Chinese studies into the “three wastes” and industrial hygiene directed by Zhou Enlai in 1970-1971 had already yielded the basic conclusion that China’s landscapes too suffered from environmental and health problems caused by industrialization. Zhou Enlai’s recorded comments on the issue suggest that this was his position early on, as he remarked in a December 1970 speech: “We have to think about future generations. Industrial hazards are a new subject for us. As soon as industrialization began, this problem became serious.”<sup>163</sup> But there was less consensus around the *reasons* that those problems existed in China and what solutions looked like. As the previous chapter showed, some theorists blamed industrial-urban configurations designed by imperialists from before 1949, while others blamed the ongoing inability to fully eradicate rightist, capitalist elements in China that sought profit and production over the benefits of the masses, like Liu Shaoqi. Other theorists though were more ready to instead begin with the premise that environmental pollution was a mere fact of life of industrialization and economic development. Some even claimed that pollution in China was actually *positive evidence* for the PRC’s incredible industrial accomplishments under Mao. For this line of thinking, socialism’s superiority lay not in a kind of supernatural ontological immunity to pollution, but rather in its ability to ultimately account for the social and political causes of pollution now that the problem

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<sup>162</sup> Michael J. Hathaway, *Environmental Winds: Making the Global in Southwest China* (University of California Press, 2013), 8.

<sup>163</sup> Guowuyuan huanjing baohu lingdao xiaozu bangongshi/Guowuyuan huanjing baohu lingdao xiaozu bangongshi 国务院环境保护领导小组办公室 [Office of The State Council Leading Group for Environmental Protection], “周恩来总理有关环境保护的谈话和讲话 [Premier Zhou Enlai’s Talks and Speeches on Environmental Protection],” 465.

had been scientifically defined. This common-denominator-of-industrialization idea was reflected in the Beijing ‘Three Wastes’ Pollution Investigation Cooperation Group’s 1971 report wherein they stated that, “the superior socialist system, will definitely solve the ‘three wastes’ hazards that capitalist countries cannot solve.”<sup>164</sup> In this view, technological progress and scientific thinking were still critical components of solving environmental problems, but they were only tools that could be correctly mobilized by the concomitant ability to confront the political and social causes of pollution.

Ann Hironaka argued that concerns about transboundary pollution were not primary drivers of the 1972 UNCHE as less developed countries did not see pollution as a “pressing issue, since it was mainly a problem in industrialized countries.”<sup>165</sup> This may have been true for most less developed countries who were more concerned about economic development or resource management, but it does seem to have been a compelling frame for the PRC delegation which had already identified pollution problems in their own country and which saw pollution caused by “neo-imperialist” wars like the Vietnam War close to PRC borders.

In their speeches, Bi Jilong and Tang Ke also pushed back against the developed world’s concerns about overpopulation. Though other developing also nations saw large populations practically—as one of their most important economic assets—and balked at proposals to limit population for environmental reasons, this point was deeply rooted in Maoist ideas. The PRC

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<sup>164</sup> *Quanguo gongye weisheng gongzi jingyan jiaoliu ziliao xuanbian* 全国工业卫生工资经验交流资料选编 [Selected Materials for National Industrial Health Work Experience Exchange]. (湖北省卫生防疫站翻印 [Reprinted by Hubei Provincial Health and Epidemic Prevention Station], 1972), 14.

<sup>165</sup> Hironaka, 38.

delegation was sanguine about the human capacity to out-innovate or outwork problems caused by overpopulation. Bi Jilong said in his June 9 speech:

Among all things in the world, human beings are the most precious. The people promote social progress, create social wealth, develop science and technology, and constantly transform the human environment through their hard work. With the progress of society and the development of production and science and technology, the ability of human beings to improve the environment is increasing day by day, so the improvement of the human environment has unlimited prospects. Any pessimistic arguments about the relationship between population growth and environmental protection are groundless.<sup>166</sup>

Tang Ke made the same point on June 10.<sup>167</sup> The phrase “Of all things in the world, people are the most precious” was born from Mao’s September 1949 article “The Bankruptcy of the Idealist Conception of History,” which criticized Malthusian concerns about overpopulation:

It is a very good thing that China has a big population. Even if China’s population multiplies many times, she is fully capable of finding a solution; the solution is production. The absurd argument of Western bourgeois economists like Malthus that increases in food cannot keep pace with increases in population was not only thoroughly

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<sup>166</sup> “Bi jilong daibiao zai xuanyan gongzuozu huiyi shang guanyu Zhongguo dui ‘Renlei huanjing xuanyan’ jiben lichang he zhuyao guandian de fayan 毕季龙代表在宣言工作组会议上关于中国对《人类环境宣言》基本立场和主要观点的发言” [Speech by Representative Bi Jilong at the Declaration Working Group Meeting on China’s Basic Position and Main Views on the Declaration on the Human Environment],” 15.

<sup>167</sup> “Tang ke tuanzhang zai renlei huanjing huiyi quanti huiyi shang de fayan (yi) 唐克团长在人类环境会议全体会议上的发言（一）” [Speech by Chairman Tang Ke at the Plenary Session of the Conference on the Human Environment (1)],” 5.

refuted in theory by Marxists long ago, but has also been completely exploded by the realities in the Soviet Union and the Liberated Areas of China after their revolutions.<sup>168</sup>

After the Chinese request to rework the draft Declaration, the phrase appeared in Principle 5 of the renegotiated Declaration at the end of the conference. Principle 5 sought to compromise the concerns of both developing and developed countries by countenancing the belief that population growth causes “problems” for the environment, and then borrowing Bi and Tang’s (or rather, Mao’s) words almost verbatim:

Of all things in the world, people are the most precious. It is the people that propel social progress, create social wealth, develop science and technology and, through their hard work, continuously transform the human environment. Along with social progress and the advance of production, science and technology, the capability of man to improve the environment increases with each passing day.<sup>169</sup>

In the West, the global environmental problematic as it concentered around the year 1970 had drawn deeply from the deeper Malthusian wells of demographic studies and concerns about overconsumption. As a result, concerns about overpopulation—especially population growth in poor developing countries—was a common critical refrain at the conference from developed countries. Speakers from Western countries thought that population problems needed to take a more central place in the conference proceedings, claiming that “unless the rate of population increase was reduced” any strategy for economic development and environmental protection

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<sup>168</sup> Mao Tse-Tung, “The Bankruptcy of the Idealist Conception of History,” Marxists.org, [https://www.marxists.org/reference/archive/mao/selected-works/volume-4/mswv4\\_70.htm](https://www.marxists.org/reference/archive/mao/selected-works/volume-4/mswv4_70.htm).

<sup>169</sup> United Nations, “Report of the United Nations Conference on the Human Environment,” A/CONF.48/14/Rev.1, *United Nations Digital Library* (United Nations, 1973), 4.

would fall short.<sup>170</sup> Norway, for example, proposed that the UN and the WHO increase funding for family planning and conduct more research into the relationship between population growth and environmental problems.<sup>171</sup>

China, however, came to first thinking about environmental problems with a different set of values and concerns. When specific pollution problems were increasingly identified and studied beginning in 1970-1971, they were relevant insofar as they impinged upon the realms of hygiene and production. As a result, studies of pollution in the PRC were first viewed really as advancements in “industrial hygiene,” the “three wastes,” and “comprehensive utilization.” Tang Ke’s June 10<sup>th</sup> speech identified precisely these things when describing China’s environmental protection work to the audience at Stockholm, saying that, since liberation:

...the health and hygiene conditions of the people have been significantly improved. In accordance with the policy of comprehensive planning, rational layout, comprehensive utilization, turning harm into benefit, relying on the masses, everyone doing it, protecting the environment, and benefiting the people, the Chinese government is beginning to prevent and eliminate industrial waste gas, waste liquid, and waste residue from polluting the environment in a planned way.

Likewise, Tang did not deny that environmental problems existed in China. He admitted that “Of course, the development of industry will cause pollution to the environment,” but followed that it could “be solved with social progress and the development of science and technology.” Despite efforts of developed countries to outflank political and social diagnoses of environmental

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<sup>170</sup> United Nations, “Report of the United Nations Conference on the Human Environment,” 47.

<sup>171</sup> Emmelin, “The Stockholm Conferences,” 136.

problems by trying to frame environmental problems as the unavoidable problem facing industrial humanity, the conference still left open questions about the precise pathology of environmental problems and their solutions.

Lastly, the prospect of presenting China's experience with "environmental protection" work at the conference itself helped to retroactively classify past governance work that was at the time *not* explicitly called "huanbao" as "huanbao." Tang listed China's environmental successes as follows:

Over the years, we have carried out mass patriotic health campaigns, afforestation, and greening of the motherland, strengthened soil improvement, prevented soil erosion, actively improved old cities, and carried out planned construction of new industrial and mining areas, etc., to maintain and improve the human environment.<sup>172</sup>

How successful Mao's China was in these endeavors is a different question, but this is—as far as I can find—one of the first statements by the PRC Party-state linking all of these endeavors into a single project called "huanbao".

### *Passing the Declaration*

By June 16, the disputes had been sufficiently resolved and the amended Stockholm Declaration finally passed. In the end, the special working group edited the original draft down to 21 principles and added four new ones. Despite the PRC's success in passing significant changes to the original draft, the dominant discourse and the principles outlined by the

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<sup>172</sup> "Tang ke tuanzhang zai renlei huanjing huiyi quanti huiyi shang de fayan (yi) 唐克团长在人类环境会议全体会议上的发言 (一) [Speech by Chairman Tang Ke at the Plenary Session of the Conference on the Human Environment (1)]," 5.

conference's Stockholm Declaration still promoted a highly scientized and universalist way of viewing environmental problems. Beyond noting differences between "advanced" and "developing" countries, the Declaration itself did not elaborate relationships between sociopolitical configurations and environmental problems. The preamble of the Stockholm Declaration framed contemporary environmental problems as an outgrowth of the deep, longue durée history of mankind's mastery of nature. It opened:

Man is both creature and moulder of his environment, which gives him physical sustenance and affords him the opportunity for intellectual, moral, social and spiritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale.<sup>173</sup>

The subject of environmental action was the universal human "we": "A point has been reached in history when *we* must shape our actions throughout the world with a more prudent care for their environmental consequences. Through ignorance or indifference *we* can do massive and irreversible harm to the earthly environment on which our life and well-being depend [emphasis added]." Moreover, the Declaration proclaimed that protecting the environment must be a policy realm for every nation going forward, "The protection and improvement of the human environment is a major issue which affects the well-being of peoples and economic development throughout the world; it is the urgent...duty of all Governments." The preamble ends stating, "The Conference calls upon Governments and peoples to exert common efforts for the

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<sup>173</sup> United Nations, "Report of the United Nations Conference on the Human Environment," 3.

preservation and improvement of the human environment, for the benefit of all the people and for their posterity.”

Environmental solutions were highly technical and scientized. Principle 18, for example, stated plainly that: “Science and technology, as part of their contribution to economic and social development, must be applied to the identification, avoidance and control of environmental risks and the solution of environmental problems and for the common good of mankind.” Principle 20 likewise stated:

Scientific research and development in the context of environmental problems, both national and multi-national, must be promoted in all countries, especially the developing countries. In this connection, the free flow of up-to-date scientific information and transfer of experience must be supported and assisted, to facilitate the solution of environmental problems; environmental technologies should be made available to developing countries on terms which would encourage their wide dissemination without constituting an economic burden on the developing countries.

Other principles touched on the need to emphasize “rational planning” and to educate people about “environmental matters,” but none make any explicit connections between political and economic systems—or even colonialism—and environmental problems. Perhaps the closest the Declaration comes is in Principle 1, which was greatly influenced by the PRC’s objections. However, even it only went so far as to place colonialism alongside “other forms of oppression” without naming names and without linking it explicitly to environmental problems, stating plainly:



Man has the fundamental right to freedom, equality and adequate conditions of life, in an environment of a quality that permits a life of dignity and well-being, and he bears a solemn responsibility to protect and improve the environment for present and future generations. In this respect, policies promoting or perpetuating apartheid, racial segregation, discrimination, colonial and other forms of oppression and foreign domination stand condemned and must be eliminated.<sup>174</sup>

A June 18 *People's Daily* article—published two days after the conference formally ended—documented remarks by Tang Ke expressing regrets about the final content of the Declaration, indicating his dissatisfaction with some of the Declaration's vagaries. Tang said, “There are still many viewpoints in the Declaration on the Human Environment that we cannot agree with...[it] does not condemn imperialist wars of aggression and their crimes of massacring innocent people and destroying the human environment.”

In sum, due its ecumenical pressures, the UNCHE struggled to allow room for political or social prescriptions for environmental problems. Cold War ideological divisions meant that international cooperation was principally articulated in one universal language that every nation around the world already spoke: the scientific, the diplomatic, and the technical. In pondering the question of how humans “know” that we have *global* environmental problems today, sociologists Peter Taylor and Frederick Buttel answered that science has a central role “in shaping what counts as environmental problems.” They argued that “scientists and political actors” weave politics “into science at its ‘upstream’ end” by constructing environmental problems in “global terms.” This framing constrains social action by “steering attention away from the difficult

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<sup>174</sup> United Nations, “Report of the United Nations Conference on the Human Environment,” 3-5.

politics that result from differentiated social groups and nations having different interests in causing and alleviating environmental problems. We know we have global environmental problems, in part,” they wrote, “because we act as if we are a unitary and a not a differentiated ‘we’.” The problem posed by the PRC delegation was ultimately over whether there really was such an undifferentiated “we”.<sup>175</sup>

### *The PRC Delegation Reflects*

In late August 1972, the PRC delegation submitted to the State Council a reflective summary report of their experience at the UNCHE (“中国代表团出席人类环境会议情况的总结报告”).

In the eyes of the delegation, the UNCHE sharpened the tension between their theories of environmental pollution that identified social and political causes and the more ecumenical, scientific, and value-free theories of the relationship between environmental problems and economic development. The report made several interesting conclusions. First and foremost, its authors concluded the “environmental issue” is an aspect of the “current international political struggle.” The conference reflected this in two ways. One, in the “struggle between the broad masses of the people in major imperialist countries like the United States and the monopoly capital groups in their own countries.” Monopoly capital groups were responsible for “blindly” developing industries, disregarding the lives of people, and polluting and poisoning the environment in such countries.

There was bountiful evidence at the conference itself for interpreting environmental issues in developed countries like the U.S. through the lens of class conflict. NGO and activist

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<sup>175</sup> Peter J. Taylor and Frederick H. Buttel, “How Do We Know We Have Global Environmental Problems? Science and the Globalization of Environmental Discourse,” *Geoforum* 23, no. 3 (January 1, 1992): 405-416.

groups from Western countries occupied the areas around the Stockholmsmässan exhibition halls, protesting the Vietnam War and environmental pollution. Lars Emmelin wrote of these activities after the conference that “To sum up the activities around the UN Conference in Stockholm is an almost impossible task. The world has probably never seen such a colossal information overload on environmental problems.” Panel discussions, musical performances, lectures, exhibitions, films, and workshops were held in various activist camps throughout the duration of the conference. There was, for example, “Friend of the Earth” which produced a daily newspaper called *The Stockholm Conference Eco*. And “Hog Farm,” “an American hippie group which ran the activities at the army tent camp at the Skarpnack air field.” “The People’s Forum” was run by “radical Swedish groups” which held talks on the “Indochina war” and a convention on “ecocidal warfare.” Japanese scientists and pollution victims alongside Native American groups travelled between these camps, participating in various programs.<sup>176</sup> The PRC delegation observed these activities, writing about them in their summary report as evidence for their interpretation about the social causes of environmental pollution:

There were countless representatives from all over the world (mainly a few industrialized countries). They discussed ‘environmental issues’ outside the meeting, held rallies, held exhibitions, and organized demonstrations to denounce the US imperialist war crimes against Indochina, or denouncing the fact that their country’s monopoly capital groups pollute the environment. Sufferers of Japanese Minamata disease also came forward to accuse the monopoly capital group of crimes causing public harm. These struggles of the masses have effectively revealed the class essence and main social roots of environmental problems. The whole situation shows that the so-called international environmental

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<sup>176</sup> Emmelin, “The Stockholm Conferences,” 139-140.

conference is mainly a political struggle. The British representative who participated in the meeting also admitted that the meeting was ‘one-tenth technical and nine-tenths political’.

What precisely the British representative meant by this last statement is unclear, but it likely had less to do with a Marxist class analysis of the political and social causes of environmental pollution and more to do with the diplomatic dealings of the conference itself. The delegation also learned from the conference that “monopoly capital groups” used “the banner of ‘environmental protection’” to obfuscate the domestic class conflicts upon which environmental problems were founded. Other phrases these monopolists used to cover up domestic class conflicts were: “there is only one earth,” “everyone has a share in environmental protection,” and “negotiating peace with nature.” Their most pointed criticism of the universalist pretenses of the conference, however, was their conclusion that the “so-called ‘Green Revolution’ is really an attempt to turn the people’s anti-pollution struggle against monopoly capital groups into a struggle between man and nature.” This framing of course aimed to

The second way in which the conference reflected “the international political struggle” was through the “struggle for control and anti-control between the superpowers...and developing countries.” This division has already been elaborated, but the report here again comes out against the idea that environmental problems are an unavoidable consequence of industrialization, accusing the developed countries of “create[ing] the public opinion that the development of industry will inevitably cause environmental pollution.” This they interpreted as part of the developed countries’ efforts to prevent developing countries growing their own economies.

Developing countries, the PRC delegation argued, could improve the environment through economic development.

The report's final section was on the delegation's "mistakes and shortcomings." It listed self-criticisms like an insufficiently coordinated approach to the United States and the failure to sufficiently change the Declaration's section on nuclear testing. It also mentioned that the delegation "lacked experience in international struggles and was not familiar enough with the cumbersome rules and procedures of UN meetings." To this, they recommended establishing a special team to handle UN affairs, as opposed to their "ad hoc teams rushing into battle." Lastly, they ended by calling for a special agency and department to deal with environmental issues both domestically and internationally. This last point shows once more that the Party believed China had environmental problems related to industrialization, but that they had a special capacity to solve them as they were not stuck in the same "contradictions" afflicting capitalist and imperialist countries.<sup>177</sup>

#### **IV. Conclusion**

The UNCHE has been widely recognized as a pivotal moment in global environmental governance. Scholar of global environmental politics, Robert Falkner, summed it up plainly by stating that the 1972 UNCHE "set in motion the process that would establish environmental stewardship as a fundamental norm in global international society." A group of Norwegian researchers, Andresen et al., recently described the UNCHE's lasting importance as follows: "Although a few scattered conservation agreements had appeared in the early years of the

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<sup>177</sup> Chuxi lianheguo renlei huanjing huiyi daibiaotuan 出席联合国人类环境会议代表团 [Delegation to the United Nations Conference on the Human Environment] "中国代表团出席人类环境会议情况的总结报告 [Summary Report on the Chinese Delegation's Attendance at the Human Environment Conference]," 213-217.

twentieth century, the 1972 Stockholm Conference on the Human Environment is generally considered the watershed event sparking a truly international approach to the environment.” They attribute the success of the conference to subsequent international treaties signed throughout the 1970s and 1980s that governed nature conservation, air and water pollution, and programs to reduce ozone-depleting emissions.<sup>178</sup> Political scientist and international environmental policy scholar Pamela Chasek claims that the “Stockholm Conference demonstrated that...cooperation on environmental and sustainable development issues is possible” and that the 1972 UNCHE shaped “environmental management for the next 50 years”—that is, through to today.<sup>179</sup> In international legal scholar Günther Handl’s view, “Stockholm represented a first taking stock of the global human impact on the environment, an attempt at forging a basic common outlook on how to address the challenge of preserving and enhancing the human environment... following Stockholm, global awareness of environmental issues increased dramatically, as did international environmental law-making proper.”<sup>180</sup> Political scientist John McCormick wrote in 1995 that “The Stockholm conference was the single most influential event in the evolution of the global environmental movement, and of a global environmental consciousness.”<sup>181</sup> Sociologist Ann Hironaka argued that “The Stockholm era represents an episode of social construction that fundamentally changed the way that modern environmental problems were understood. A new conception of the environment linked a formerly diverse set of issues under a common umbrella and reframed them as global

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<sup>178</sup> Steinar Andresen, Elin Lerum Boasson, and Geir Hønneland, *International Environmental Agreements: An Introduction* (Routledge, 2012), 3-4.

<sup>179</sup> Chasek, “Stockholm and the Birth of Environmental Diplomacy.”

<sup>180</sup> Günther Handl, “Declaration of the United Nations Conference on the Human Environment Stockholm, 1972 and the Rio Declaration on Environment and Development Rio de Janeiro, 1992,” United Nations, 2012, <https://legal.un.org/avl/ha/dunche/dunche.html>.

<sup>181</sup> John McCormick, *The Global Environmental Movement* (Wiley-Blackwell, 1995), 127.

concerns.”<sup>182</sup> In short, the 1972 UNCHE is widely portrayed as the seminal moment in progressive narratives about global environmental awareness, international cooperation on environmental issues that transcend political boundaries, and a more serious approach to confronting environmental problems through formal bureaucratic, institutional, and legal structures.

Many developed nations attending the UNCHE saw it as explicitly about depoliticizing environmental issues, thereby framing them in such a way that would facilitate transnational cooperation.<sup>183</sup> In a message to Congress in February 1972, US President Richard Nixon articulated the U.S. position toward the upcoming 1972 UNCHE thusly, “To cope with environmental questions that are truly international, we and other nations look to the first world conference of governments ever convened on this subject: the United Nations Conference on the Human Environment, to be held in Stockholm, Sweden, in June of this year. This should be a seminal event of the international community's attempt to cope with these serious, shared problems of global concern that transcend political differences.” Writing just after the conference in 1973, urbanist Tim E. J. Campbell observed that Stockholm showed how “the process of dealing with environmental problems creates issues which cut across the economic and social objectives of individual nations.”<sup>184</sup>

However, as shown above, from the perspective of the PRC delegation, the UNCHE was far from a mere exercise in scientific consensus-building and technical knowledge-sharing. There

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<sup>182</sup> Hironaka, *Greening the Globe: World Society and Environmental Change*, 25.

<sup>183</sup> Christopher Joyner and Nancy Joyner, “Global Eco-Management and International Organizations: The Stockholm Conference and Problems of Cooperation,” *Natural Resources Journal* 14, no. 4 (October 1974): 539.

<sup>184</sup> Campbell, “The Political Meaning of Stockholm: Third World Participation in the Environment Conference Process,” 139.

were stark disagreements between developing and developed countries. “Environmental protection versus the right to development” and “the pollution of the affluent versus the degradation of poverty” were two of the main environmental debates that emerged at Stockholm—and that remain ongoing today. Many previously-colonized developing nations feared that the “universalist intentions of the conference organizers” masked “yet another form of Western domination over the millions of people still deprived of adequate food and clothing, shelter and education, health and sanitation.”<sup>185</sup>

The Chinese delegation is associated with this more agonistic approach. China’s delegation pushed back against the implicit and explicit ecumenical claims posed by the UNCHE that contemporary environmental problems did not reflect some kind of social or political configuration, but was rather a fundamental characteristic of the industrial condition that could only be solved through international diplomacy, science, and technological progress. Dismissing the Chinese delegation’s criticisms of imperialism, capitalism, and the United States more specifically as the main obstacles to solving environmental problems as “highly politicized” occludes more than it reveals—after all, being “political” was precisely their point. It reflected a sincere analysis that environmental problems and their solutions were not *merely* technical, scientific, or diplomatic matters, but could be approached through social and political forms.

This encounter had important implications for how environmental problems would be theorized for the remainder of the Mao period. For example, the nature of the relationship between economic development and environmental degradation would remain a fundamental topic in subsequent Chinese discussions about national development. Indeed, these ideas were

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<sup>185</sup> Mobjörk and Lövbrand, *Anthropocene (In)Securities: Reflections on Collective Survival 50 Years After the Stockholm Conference*, 2.



the foundations for later thinking about “sustainable development,” of Deng’s “balancing” economic growth and environmental degradation, and of the idea that one could be traded for the other. In one sense, the environmentalist discourse that emerged in China after the UNCHE was discursively constrained by the internationalization of a particular way of thinking and talking about environmental issues. But, in another sense, the Cold War nature of the UNCHE encounter also gave shape to the question of how to do “environmental protection” through Maoist conceptual categories. Through acts of contrast and comparison that the UNCHE invoked, the material and scientific “fact” of environmental problems existing alongside industrialization became further entrenched, but their specific pathologies, scope, and the theories of their solutions were unsettled and in flux.

## CHAPTER 4 – Waste to Treasure, Harms to Benefits: Comprehensive Utilization of the Industrial “Three Wastes” and Maoist Environmentalism

### I. Introduction

In this chapter, I use Chinese academic and trade journals, factory reports on comprehensive utilization, and propaganda essays to explore how environmental problems were confronted and managed from industrial spaces. In the first section, I provide a brief background on the history of comprehensive utilization of the industrial “three wastes.” I also attempt to reconstruct the logic behind comprehensive utilization as a production practice from its roots in the exigencies of socialist construction efforts of the 1950s. I then provide several detailed examples of how factory teams innovated new environmentalist comprehensive utilization of the industrial “three wastes” strategies following Zhou Enlai’s March 1971 call for a mass campaign to do so. From this, I argue that new scientific knowledge produced about the externalities of industrial waste, namely its deleterious effects on human health and other forms of production, reconfigured the comprehensive utilization of the industrial “three wastes” as an environmentalist practice. As a preexisting industrial philosophy and practice that managed the usage of industrial materials comprehensive utilization was logically viewed as a method to manage pollutants at the source. Its proponents argued that comprehensive utilization offered a revolutionary way solve “public hazards” in a way that capitalist countries could not, namely by simultaneously removing toxic pollutants from society while increasing production. It continues to be an industrial practice in China today.<sup>186</sup>

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<sup>186</sup> Pengda Li 李芃达, “Gongye Ziyuan Ruhe Zongheliyong 工业资源如何综合利用 [How to Comprehensively Utilize Industrial Resources],” Gov.cn, February 17, 2022, [http://www.gov.cn/zhengce/2022-02/17/content\\_5674097.htm](http://www.gov.cn/zhengce/2022-02/17/content_5674097.htm).

A second section explores two other significant contributions from industrial workspaces that shaped the Maoist environmentalist project. Firstly, it delves into the political line on environmental problems theorized by a chemical technician at a factory in Shenyang, Hua Qingyuan. In Maoist China, an epistemological emphasis on the experiential knowledge of workers and the understanding that industrial factories were the main sources of pollution meant that solutions to pollution problems ought also to emanate from the people who worked there. Hua wrote an essay interpreting his direct struggle combating pollution in a factory setting through a Maoist lens, using his experience to support his theorizations on what the correct party line on environmental issues ought to be. What kind of thinking stood in his way at his factory? What wrong ideas did his colleagues have? He answered all of these, and more. His essay, widely disseminated by the Party, affirmed the centrality of workers' experiential knowledge in formulating environmental policy. Secondly, it analyzes an essay by the Shanghai Liaoyuan Chemical Factory that narrated how they used Maoist political practices such as self-criticism and cadre-led study classes alongside Maoist epistemological doctrines like the juxtaposition of indigenous versus foreign methods and the appreciation of folk knowledge, to organize their anti-pollution efforts. This chapter, therefore, illuminates a unique aspect of the trajectory of environmentalism in Maoist China, highlighting its rootedness in the Maoist waste reuse practices, the politics of the factory, and the ideological framework of the Party.

As a final introductory note, it is worth saying that the Party-state published and disseminated primary sources I employ here do not represent an unmediated reality (neither are they pure fiction). I read them rather for their ability to help me reconstruct the ideology and goals behind the Party-state's environmentalist project at this point in time. For instance, I find it valuable that there existed propaganda pieces about how the application of Maoist ideas and

practices could yield successful factory anti-pollution practices. It illustrates that the Party *did* try to mobilize workers and technicians around environmental issues. It also reveals the methods and narratives the Party employed to do so. Moreover, such a source highlights the Party's desired connection between Maoist ideology and environmental responsibility, and it also suggests that there were genuine efforts at a number of factories around the country to try and approach environmental problems through Maoist concepts.

## II. Comprehensive Utilization of the Industrial “Three Wastes”

Chinese historians point out that “comprehensive utilization” in China first applied to the management of water resources and riparian systems in the early-mid 1950s. The Chinese notion of “multi-purpose” water development drew on the Tennessee Valley Authority's model.<sup>187</sup> Governing a mostly agricultural nation, Chinese leadership saw the efficient utilization of water resources as an important national development project. In October 1952, Mao inspected the Yellow River and the planned site of the Sanmenxia dam. to his comments there as the one of the earliest articulations of the idea that would come to be called comprehensive utilization. Mao said, “This large reservoir has been built, the Yellow River flood that caused trouble for thousands of years has been solved, and it can also irrigate tens of millions of *mu* of farmland in the plains, generate a million kilowatts of electricity, and have conditions for the passage of ships. This can be studied.”<sup>188</sup> The Soviets also helped formulate the comprehensive utilization of the Yellow River through dam-building as part of the First Five Year Plan. An October 1954 Soviet essay translated into Chinese, titled “Discussion on the Comprehensive Utilization of

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<sup>187</sup> David A. Pietz, *The Yellow River: The Problem of Water in Modern China* (Harvard University Press, 2015), 5-6.

<sup>188</sup> Wang Huayun王化云, *Wang Huayun Zhihe Wenji 王化云治河文集 [Anthology of Wang Huayun's River Control]* (Huanghe Shuili Chubanshe 黄河水利出版社 [Yellow River Water Conservancy Publishing House], 1997), 60-67.

Rivers” by a Soviet technician named F. F. Gubin (弗·弗·古宾) explained that comprehensive utilization of rivers was fundamentally about “developing rivers in order to meet the requirements of many national economic departments at the same time.” According to Gubin, this meant that river management needed to simultaneously take into consideration economic activity like hydropower, irrigation, transport, water supply, fishing, and transportation of lumber (木材浮运)—as well as threats to that activity like flooding.<sup>189</sup> A May 1955 report from an engineer of the Yellow River Planning Commission (黄河规划委员会工程师) working with Soviet experts on the Sanmenxia dam showed how these principles informed the construction of the Sanmenxia dam, writing “The Sanmenxia hydropower project is the first phase of the project to solve the comprehensive tasks of flood control, irrigation, power generation, shipping, etc. in the lower reaches of the Yellow River.”<sup>190</sup> The practice transferred to the industrial realm by 1956, when Chinese planners began applying comprehensive utilization to the management of material resources, particularly coal, in conjunction with the 156 large-scale heavy industrial enterprises sponsored by the Soviet Union during the PRC’s First Five-year Plan.

This development also coincided with the Party-state’s efforts in the mid-late 1950s to apply socialist principles to all aspects of socio-economic life in pursuit of socialist construction, including waste management.<sup>191</sup> To this phenomenon, anthropologist Adam Liebman argued that the slogan *ren ding sheng tian* (人定胜天) has often been misleadingly translated as “man must

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<sup>189</sup> F. F. Gubin 弗·弗·古宾, “Lun Hechuan de Zongheliyong 论河川的综合利用 [On the Comprehensive Utilization of Rivers],” *Xin Huanghe 新黄河 [New Yellow River]*, October 1954, 11–18, 32.

<sup>190</sup> Lu Qinkan 陆钦侃, “Sanmenxia Shuili Shuniu Zongheliyong de Shuili Jisuan 三门峡水力枢纽综合利用的水利计算 [Water Conservancy Calculation for Comprehensive Utilization of Sanmenxia Hydropower Complex],” *Shuili Fadian 水利发电 [Water Power]*, August 1955, 35.

<sup>191</sup> Joshua Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing* (University of California Press, 2020), 77.

conquer nature”—with “nature” in this instance referring to a much more recent notion of a fragile nature or environment that is “threatened by modern human activity and thus in need of protection.” Liebman suggests that *tian* is not best translated as “the environment” or “nature” in our contemporary understanding of the term. Rather, he claims that Mao’s usage of *tian* was more akin to “cosmos” or “heaven”, and so was associated with China’s past feudal rulers whose own authority came from the “cosmos” or “heaven.” Liebman explains that “Mao’s *tian* was a (super-) natural historical threat to be overcome by the people, while contemporary environmentalists’ “nature” is threatened by people.” Thus, from the Maoist point of view, the slogan *ren ding sheng tian* was actually more about overcoming the effects of feudalism and societal oppression through collective action rather than conquering nature in the environmentalist sense. The way to achieve this was through rapid industrialization and economic production. The problem was the early Mao regime had limited materials, environmental wealth, and capital with which to achieve it. Consequently, Liebman writes, production and development were to be achieved through “crucial virtues” like “self-reliance, diligence, selflessness, modesty, devotion, and frugality, and so highlights frugality as an important ethic shaping the Maoist state’s relationship to using and handling waste left over from production and consumption processes.<sup>192</sup>

Joshua Goldstein termed the early Mao state’s relationship to waste as a system of “industrialization without disposability.” “In the Mao-era socialist ideal,” Goldstein wrote, “there is no such thing as garbage; rather, garbage is actually just ‘misplaced resources’...and socialism, according to the Mao-era maxim, ‘changes the useless into the useful.’”<sup>193</sup> In short, it

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<sup>192</sup> Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China.”

<sup>193</sup> Joshua Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing*, 66, 77.

was a vision of “an economy in which nothing was wasted and every scrap and gesture of thrift contributed to an ethical national totality, to a technical marvel that converted each voluntary effort into a bit more industry, a bit more production, a bit more surplus, a small reward, a few cents, a sweet.”<sup>194</sup> According to Goldstein, this vision of an ideal socialist society—frugal, self-reliant, and maximizing use-values—drove recycling practices in Beijing. The same ethos also drove comprehensive utilization of the industrial “three wastes.” Even the same slogan, “changing the useless into the useful,” was often used to describe what comprehensive utilization did.

At least by the mid-1960s, in some places, comprehensive utilization began to be loosely associated with pollution and urban/environmental hygiene concerns.<sup>195</sup> Liebman wrote briefly about a 1966 “three wastes” report from Kunming that countenanced to some degree the toxic and harmful nature of industrial processes on agriculture and human health. The Kunming report discussed how “comprehensive utilization” was used predominantly for toxic “solid waste”, and less for liquid and gas waste—which he claims were more difficult to find uses for. Liebman suggests that this concern with industrial pollution in the 1960s was related to the increased industrialization following the Great Leap Forward. According to Liebman, this development also underscores the material implications of the philosophies that guided Chinese industrial policy and broader attitudes toward waste during the Mao era. It also highlights the evolution of

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<sup>194</sup> Joshua Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing*, 125-127.

<sup>195</sup> Zhang Lianhui张连辉, “Xin Zhongguo Huanjing Baohu Shiye de Zaoqi Tansuo 新中国环境保护事业的早期探索 [Early Exploration of Environmental Protection in New China],” *Dangdai Zhongguoshi Yanjiu 当代中国史研究 [Contemporary China History Studies]* 17, no. 4 (July 2010): 40–47.

conceptual understandings of waste and nature as industrial production expanded and its environmental consequences became increasingly evident.<sup>196</sup>

The same shift in thinking about waste and nature evidently also occurred in Shanghai. In March 1966, the Shanghai Environmental Hygiene Bureau (SEHB 上海市环境卫生局) published a compilation of local studies into the comprehensive utilization of the “three wastes”. The SEHB emphasized that comprehensive utilization was no longer merely about the efficient use of resources or increasing production, but was also a matter of public health:

Some of the industrial “three wastes” contain harmful and toxic substances. If they are irresponsibly emitted, and not treated, they will pollute the air and affect the quality of the soil. They will corrode the foundations of the factory and the sewer lines; they will corrode our tools and equipment. They can even impact the bodily health of the masses and the factory workers. At the same time, the industrial “three wastes” contain a large number of useful materials, failing to use them and recklessly emitting them is considered a massive waste. From this we can see that if we do not handle “three wastes” work well, it will bring great harm to agricultural and industrial production and to the hygiene of the urban environment (城市环境). To greatly develop the handling of the “three wastes” work will from now on be a great long-term important political and economic responsibility... As the Bureau was established not long ago, the grasp of the “three wastes” situation may not be comprehensive.

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<sup>196</sup> Adam Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China,” *Critical Asian Studies* 51, no. 4 (August 31, 2019): 537–57.



The Shanghai Guanghua Chemical Factory submitted a report explaining how they turned various waste liquids into “high-quality sodium bicarbonate” (baking soda). “Dumping waste materials into the sewer,” they admitted, “not only wastes precious resources, but also pollutes the Huangpu waters and lessens the water quality. It affects the water that is used both for production and daily life. Utilizing this waste will not just create wealth, but also improve environmental hygiene.”<sup>197</sup> Most reports in this collection, however, did not emphasize how their research related to “environmental hygiene,” removing harmful substances, and preserving human health. Instead, most reports only explained how they used comprehensive utilization of wastes to produce new products and useful substances. Still, this evidence suggests that there was a small shift in perspective by the mid-1960s, acknowledging that comprehensive utilization could be more than just a production practice, but could also mitigate certain industrial externalities located inside and outside the factory.

This gradual awareness of polluting and toxic substances from industrial sources and their effects presaged the shift in Chinese conceptualizations of a fragile and human-impacted nature that would be more fully realized in the early 1970s. The global explosion in knowledge of and studies about industrial pollution indicated that the industrial “three wastes” were not just inert “waste”, but also *dangerous* to public health or other production processes. This imbued it with a wholly new meaning and import. The “three wastes” were no longer just, in Marx’s terminology, “dead” matter waiting to be transformed by human labor—it was actively harming and endangering society.<sup>198</sup> This change in perspective can be seen in the shift of comprehensive

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<sup>197</sup> Shanghai shi huanjing weishengju 上海市环境卫生局 [Shanghai Environmental Hygiene Bureau], *Gongye Feishui Feiqi Feizha de Chuli He Liyong 工业废水废气废渣的处理和利用 [Treatment and Utilization of Industrial Wastewater, Exhaust Gas, and Waste Residue]* (Shanghai shi kexue jishu chubanshe 上海市科学技术出版社 [Shanghai Science and Technology Publishing], 1966).

<sup>198</sup> Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China.”

utilization being a way to harness and transform waste for productive uses toward comprehensive utilization as a means to mitigate the negative impacts of industrial wastes on the environment and human health.

The more complete turn toward seeing comprehensive utilization as an explicitly environmentalist practice can be seen in documents from 1971-1973 created in response to Zhou's 1971 call for a mass campaign to eliminate the "three wastes".<sup>199</sup> The QRC, for example, described comprehensive utilization of the industrial "three wastes" as the primary tool that the masses could use to fight the new category of problems called "public hazards". The concept of "public hazards" was an important conceptual vehicle for this change as it gave a capacious term to capture all the various externalities of the industrial "three wastes"—public health central but not alone among them. Indeed, the QRC introduced their studies through this framing, writing: "Practice has proved that the treatment of 'three wastes' can eliminate public hazards and also increase production and save raw materials."<sup>200</sup>

The QRC's collection offers a litany of examples for how this played out on the ground, typically as innovations by individual factories that were then published and shared. The below selection of titles gives a sense of the broad array of different materials that factories, hygiene bureaus, and research teams in Qingdao were transforming according to "comprehensive utilization".

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<sup>199</sup> "Bianzhe de Hua 编者的话 [Editor's Note]."

<sup>200</sup> "Qianyan 前言 [Intro]."

1. “Using Soybean Oil Leftovers to Produce Arteriosclerosis Prevention and Treatment Drugs” (利用豆油下脚生产动脉硬化防治药) by the Qingdao Vegetable Oil Factory (青岛植物油厂)
2. “Recovering Sulfur from Hydrogen Sulfide” (硫化氢回收硫磺) by the Qingdao Red Star Chemical Factory (青岛红星化工厂)
3. “Extraction of Sodium Carbonate from Sulphurated Blue Wastewater in Dyeing Plants” (从染料厂硫化蓝废液中提取大苏打) by No. 57 Factory of the Qingdao Wuqi Middle School(青岛第三十中学五七工)
4. “Recovery of Copper Sulfate from the Waste Residue of Basic Violet 3” (从品紫废渣中回收硫酸铜) by the Qingdao Dyeing Factory (青岛染料厂)
5. “Production of Inositol Tablets by Soaking Corn in Water” (利用玉米浸泡水生产肌醇片) by Qingdao Foodstuffs Starch Factory (青岛粮食局淀粉厂)
6. “Recycling a Variety of Chemical Products from the ‘Three Wastes’” (从“三废”中回收多种化工产品)<sup>201</sup>

Many of these comprehensive utilization practices produced materials that could be used to fight health problems. Inositol tablets, for example, are used to treat issues related to diabetes, metabolism, and anxiety.

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<sup>201</sup> “Mulu 目录 [Table of Contents],” in *Qingdaoshi “Sanfei” Zongheliyong Ziliao Xuanbian 青岛市“三废”综合利用资料选编 [Selected Compilation of Materials on Comprehensive Utilization of “Three Wastes” in Qingdao]* (Qingdao geming weiyuanhui shengchan zhijunbu keji zu 青岛市革命委员会生产指挥部科技组 [Qingdao Municipal Revolutionary Committee Production Headquarters Science and Technology Group], 1972).

*“Turning Harm into Benefit”, or Turning Brewer’s Yeast into 5’-mononucleotides*

Even the Qingdao Brewery (青岛啤酒厂) participated in the mass campaign for comprehensive utilization. They submitted a report about how they created 5’-mononucleotides with brewer’s yeast (从啤酒酵母中制取 5’-单核苷酸). In 1972 China, 5’-mononucleotides were used as part of medicinal compounds that could be used for “blood diseases (leukopenia, abnormal platelets, etc.), radiation lesions (exposure to radioactive sources), heart disease, high blood pressure, arthritis, anti-cancer drugs, reduction of drug toxicity.” It also had “curative effects” that could be used “for industrial protection [工业防护] in the chemical industry and metallurgical industry.” Their processes also produced 2’ and 3’-mononucleotides, which “promote the development of crop root systems, thick stems, vigorous growth, and early ripening of fruits.” They thereby had “a significant effect on increasing production of rice, wheat, corn, melons, fruits, vegetables, etc. In addition, it has a good effect on sericulture, pond fish, poultry, etc., and is being valued and used by relevant units.” In this sense, the movement to innovate comprehensive utilization practices was not just an industrial movement, but one that brought the realms of production, environment, and human health together into a single holistic practice. What’s more, comprehensive utilization fulfilled the Maoist imperatives of “self-reliance” (自力更生), “turning waste into treasure” (变废为宝), and “turning harms into benefits” (化害为利). Because of this, comprehensive utilization of the industrial “three wastes” became a foundational centerpiece of Maoist *huanbao*.

It is at this point worth momentarily dwelling here on these two last phrases: “turning waste into treasure” and “turning harms into benefits.” Liebman places the appearance of the former slogan in the 1950s, amidst the new socialist material culture wherein “waste” became an

essential symbol of the difference between capitalism and socialism. Mao himself also saw eliminating waste as “one of the keys to rapid industrialization” and the existence of “waste” as evidence of “corruption, extravagance, and capitalism.” Liebman links Mao’s thinking to Marx’s writing on the power of human labor in transforming otherwise idle, raw, or inanimate materials into something useful. As a result, the slogan “turning waste into treasure” was frequently used in support of Maoist critiques of capitalism and China’s national industrial goals. “In this sense,” Liebman writes, “industrialization was conceived as a process of mobilizing and deploying human labor to transform matter into increasingly useful, technological things.”<sup>202</sup>

It is this second phrase, though, “turning harms into benefits” that stands out here. I have not been able to find evidence of people in China using this slogan in the context of industrial production or waste recycling before 1971-1972. It is thus likely yet another piece of evidence that points to the shifting understanding of industrial waste and its potential harm and utility. If the phrase “turning waste into treasure” encapsulates a view of waste as raw material waiting to be activated by human labor, the phrase “turning harms into benefits” recognizes waste as a potential source of harm that, through careful handling, could be transformed into something beneficial—a sort of medicalization of waste. This shift suggests an increasing awareness that management strategies for waste need not only focus on reclaiming raw materials but also on mitigating potential harm to human health and the environment.

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<sup>202</sup> Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China.”

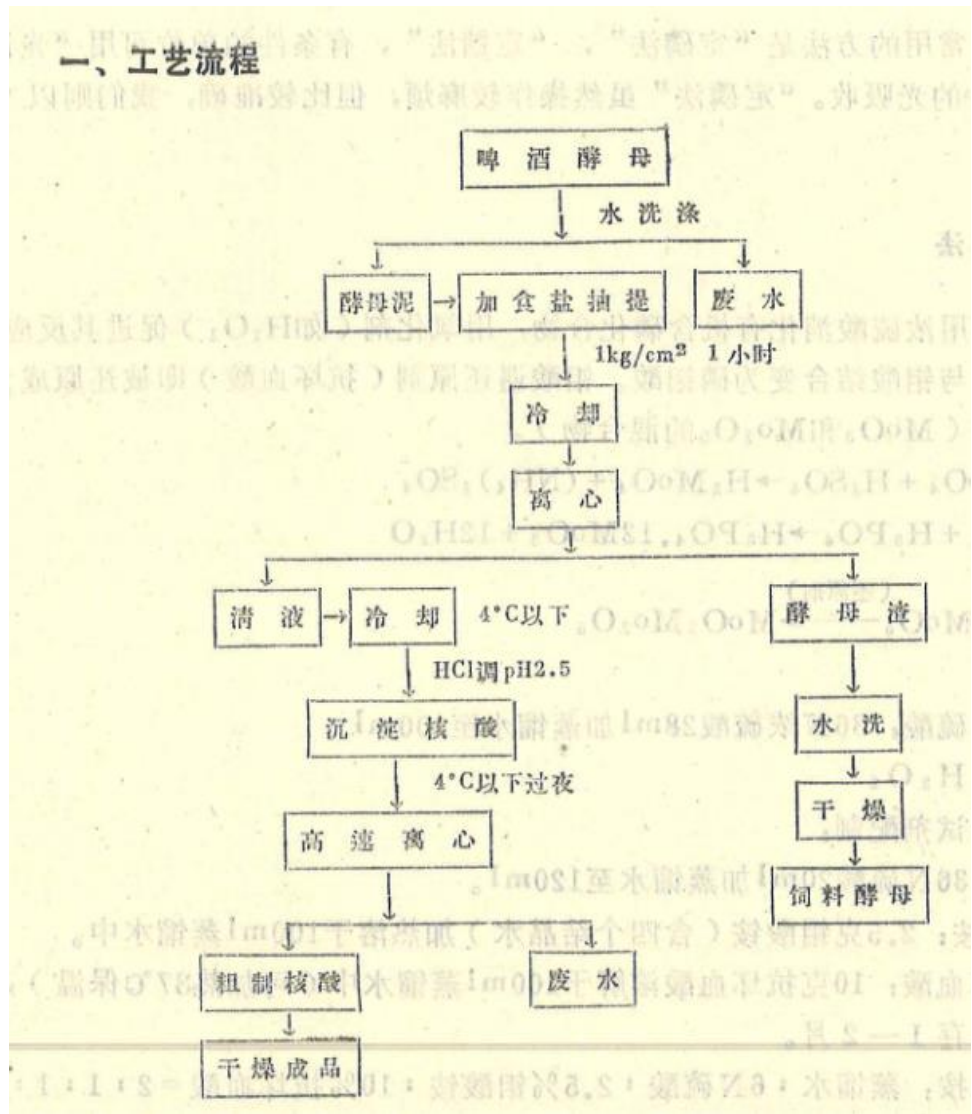


Figure 1. A flow chart showing part of the process in transforming brewer's yeast into mononucleotides.

The Qingdao Brewery characterized their work as part of the ongoing Cultural Revolution, writing:

During the Great Proletarian Cultural Revolution, following the teachings of the great leader Chairman Mao on “preparing for war, preparing for famine, serving the people”

and “with regards to comprehensive utilization, there is much to be done”, we organized a “three-in-one combination” (三结合) scientific experiment group with workers as the main body. After hard work, in less than a year, the test successfully produced nucleic acid from beer yeast and made a nucleic acid compound, realizing the comprehensive utilization of beer yeast.

That the report conceived of their activities as part of a “three-in-one combination” scientific experiment group is important. The specific configuration of the “three-in-one combination” did not stay constant throughout the Cultural Revolution and at different moments and places referred to revolutionary organizations composed of representatives from the PLA, CCP cadres, and representatives from revolutionary mass organizations; or the combination of industrial workers, peasants, and soldiers; or old, middle, and young cadres. In other factory reports on comprehensive utilization practices, “three-in-one combinations” referred to workers, technicians, and cadres, typically with workers at the center.<sup>203</sup> Rui Kunze and Marc Andre Matten showed that beginning in the 1950s, workers and technicians often were organized together at the factory level to innovate new technologies that would increase production and so help national development.<sup>204</sup> Comprehensive utilization of the industrial “three wastes” studies show how this same method of organizing knowledge production was directed at the issue of industrial pollution and of improving the nation’s environment.

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<sup>203</sup> “Cong Pijiu Jiaomuzhong Zhiqu 5’ Yi Danhesuan 从啤酒酵母中制取 5’ 一单核苷酸 [Extracting 5’-Mononucleotide from Beer Yeast],” in *Qingdaoshi “Sanfei” Zongheliyong Ziliao Xuanbian 青岛市“三废”综合利用资料选编 [Selected Compilation of Materials on Comprehensive Utilization of “Three Wastes” in Qingdao]* (Qingdao geming weiyuanhui shengchan zhijunbu keji zu 青岛市革命委员会生产指挥部科技组 [Qingdao Municipal Revolutionary Committee Production Headquarters Science and Technology Group], 1972), 55–62.

<sup>204</sup> Rui Kunze and Marc Andre Matten, *Knowledge Production in Mao-Era China: Learning from the Masses* (Lexington Books, 2021), 135.

The No. 57 Factory of the Qingdao No. 30 Middle School (青岛第三十中学五七工) framed their practice of turning wastewater from dyeing plants into baking soda as addressing specific concerns about local water pollution: “The No. 57 factory of our school comprehensively utilizes wastewater from the sulphurated blue wastewater workshop. In this way, on the one hand, it saves sodium for the country. On the other hand, it reduces the harm of underground water and seawater pollution.”<sup>205</sup> Likewise, the “Three-in-One Dye Recycling Team” (“三结合”染料回收小组) at the Qingdao State Cotton Mill No. 9 (青岛国棉九厂) admitted that due to the “booming development of industrial production” their daily wastewater discharge had greatly increased. They blamed “counter-revolutionary and revisionist elements” at their factory for “poisoning sewers and rivers” which “not only wasted the country’s resources, but also harmed crop growth and affected people’s health.”<sup>206</sup>

China’s policy of self-reliance in science and technology, born from China’s estrangement from the Soviet Union and capitalist developed countries in the 1960s, shaped the types of practical environmentalist solutions that were imaginable in 1971-1973, but also provided a basis for iterative technical innovations. Reports and studies like those compiled by the QRC before the NCEP show the logic behind how comprehensive utilization took on a new

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<sup>205</sup> “Cong Ranliaochang Liuhua Feiyezhong Tiqu Dasuda 从染料厂硫化蓝废液中提取大苏打 [Extraction of Soda from Sulfur Blue Waste Liquid of Dye Factory],” in *Qingdaoshi “Sanfei” Zongheliyong Ziliao Xuanbian 青岛市“三废”综合利用资料选编 [Selected Compilation of Materials on Comprehensive Utilization of “Three Wastes” in Qingdao]* (Qingdao geming weiyuanhui shengchan zhijunbu keji zu 青岛市革命委员会生产指挥部科技组 [Qingdao Municipal Revolutionary Committee Production Headquarters Science and Technology Group], 1972), 50–51.

<sup>206</sup> “Cong Ranseshuizhong Huishou Ranliao 从染色污水中回收染料 [Recovering Dye from Dyeing Wastewater.],” in *Qingdaoshi “Sanfei” Zongheliyong Ziliao Xuanbian 青岛市“三废”综合利用资料选编 [Selected Compilation of Materials on Comprehensive Utilization of “Three Wastes” in Qingdao]* (Qingdao geming weiyuanhui shengchan zhijunbu keji zu 青岛市革命委员会生产指挥部科技组 [Qingdao Municipal Revolutionary Committee Production Headquarters Science and Technology Group], 1972), 106.



patina as an environmental, health management, and hygienic practice, instead of a practice focused mostly, or still in many cases solely, on production and efficiency.

The centrality of comprehensive utilization also underlined a fundamental optimism at the heart of Maoist *huanbao*, reflecting the Maoist materialist belief that human beings could manipulate and control nature in order to build a socialist society. This too springs from the same Maoist anthropocentrism reflected in the binary “human war on nature” that scholars have blamed for the widespread ecological degradation of the Mao period. By 1971-1972, however, this same human-nature binary was in the process of being redirected and mobilized for a human war against pollution and environmental problems. Mao’s war on nature had found a new battlefield. Indeed, in a speech at the August 1973 NCEP, Xie Hua (谢华) of the Ministry of Health adopted similar militarized language to describe the new task that lay before the Party, saying “Today, with the development of industry, the discharge of ‘three wastes’ has brought some new problems to the environment and has some new impacts on human health. The health sector must be actively involved in the battle to protect the environment and combat pollution.”<sup>207</sup> In a 1978 essay, the Vice Chairman of the National Association for Science and Technology, Mao Yisheng, made a slightly different formulation, saying that the science of environmental protection allowed humans to “conquer nature” more effectively by giving them a method to deal with pollution that previously was not dealt with:

However, humans still need to conquer nature. Even though there may be negative effects of pollution, we still have the science of “environmental protection”, through various

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<sup>207</sup> Xie Hua 谢华, “Weishengbu Xie Hua Tongzhi Zai Guanguo Huanjing Baohu Huiyishang de Fayan 卫生部谢华同志在全国环境保护会议上的发言（根据记录整理） [Speech by Comrade Xie Hua of the Ministry of Health at the National Environmental Protection Conference]” (Beijing, China, August 1973).

technologies, to eliminate them. Not only to eliminate, but also to turn bad things into good things, to transform the “three wastes” in industry into resources, and make comprehensive use of them. Production and pollution were originally two opposing sides, we can transform the contradiction and unify them. The weapon of science is truly invincible.<sup>208</sup>

Lastly, it is noteworthy that the movement toward comprehensive utilization practices also stimulated an evolution of societal attitudes towards waste and pollution. As noted by Jonathan J. Keyes, the outcome of what is and is not considered pollution is a social process: “Waste becomes pollution only over time and only when a society deems it as such, an occurrence that happens less frequently or quickly as one might suspect.”<sup>209</sup> At the August 1973 first National Conference of Environmental Protection, Gu Ming spoke about how comprehensive utilization offered the exciting ability to transform industrial substances without limit, “According to the viewpoint of dialectical materialism, there are only unknowable and unused substances in the world, and there is no unknowable and unusable substances. All so-called wastes and poisons are relative and can be transformed. With the progress of society and the development of science and technology, more and more substances will be recognized and utilized by human beings, and so there is great potential for comprehensive utilization.”<sup>210</sup> Here

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<sup>208</sup> Mao Yisheng 茅以升, “Kexuejia Tan Huanjing Baohu 科学家谈环境保护 [Scientists Talk Environmental Protection],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 5 (October 1978): 2.

<sup>209</sup> Jonathan Keyes, “A Place of Its Own,” *Journal of Urban History*, March 1, 2000, 383.

<sup>210</sup> Gu Ming 顾明, “Yi Lv xian Wei Gang Gao hao Huanjing Baohu Wei Guangda Renmin He Zisun Houdai Zaofu -- Gu Ming Tongzhi Zai Quanguo Huanjing Baohu Huiyi Shang de Fa Yan 以路线为纲搞好环境保护 为全国人民和子孙后代造福 -- 顾明同志在全国环境保护会议上的发言 [Taking the Line as the Guiding Principle, We Must Do a Good Job in Environmental Protection for the Benefit of the Vast People and Future Generations – Speech by Gu Ming at the National Conference on Environmental Protection],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 248–57.

we see how Maoist values of self-reliance, the struggle for production, and innovations from production units themselves shaped the process through which different chemical substances and materials came to be considered as a transformable or salvageable pollutant—thereby changing its industrial and social value. Industrial pollutants were only pollutants from a certain point of view, and through scientific advancements and local innovations, workers could find ways to break up their constituent parts and reshape them into something new—something beneficial or harmless.

### **III. The Mass Line, Mass Mobilization, and the Correct Political Line of Public Hazards on the Factory Floor**

#### *Theorizing the Correct Political Line on Industrial Pollution from a Factory in Shenyang*

A technician from a Shenyang-based pharmaceutical factory named Hua Qingyuan (华庆源) wrote a popular essay titled “Comprehensive utilization promotes benefits and eliminates harm” (综合利用要兴利除害) in September 1971. Originally published in the authoritative Party journal *Red Flag* and the national newspaper *People’s Daily*, Hua’s essay was often attached as an introduction to “three wastes” and comprehensive utilization reports in the early 1970s. There is little available about Hua Qingyuan himself, beyond the fact that he was a technician of some kind involved in chemical production at the Northeast Pharmaceutical General Factory (东北制药总厂) in Shenyang—he often referenced “my chemical factory” throughout the essay.

Hua argued that confronting industrial pollution first and foremost required making it politically correct, and so actionable, writing “Like other problems in industrial construction,

eliminating the hazards of ‘three wastes’ is fundamentally a matter of thinking and the line. We must firmly grasp the outline of the struggle between the two classes, the two roads, and the two lines.” Hua sprinkled Mao quotes throughout, as evidence that Mao had in fact always prioritized comprehensive utilization and protecting the health of the people, thereby framing the fight against industrial pollution as a continuation of Mao’s revolution.

Hua drew on his own experiences at the Northeast Pharmaceutical General Factory, explaining how he discovered that in the process of producing chloramphenicol (a treatment for bacterial conjunctivitis), his factory produced an (unnamed) toxic byproduct. This toxic pollutant was originally taken to the suburbs to be burned, but the toxic smoke killed the saplings of the nearby commune. So, instead, they piled it up in the factory. But there, they discovered that it seeped underground, polluting waterways, thus becoming a “problem with no solution” (无门的老大难问题). The workers, however, were inspired when they remembered the teachings of Chairman Mao regarding comprehensive utilization. They then realized that they could turn the toxin into an herbicide. According to Hua, their herbicide was “welcomed by poor and lower-middle peasants and could supply 300,000 *mu* of farmland.” This proved, in Hua’s view, that “the completion of the main production plan and the task of eliminating the ‘three evils’ are completely consistent and mutually reinforcing.” Comrades who were worried that dealing with the “three wastes” would hurt their production plans could thus “draw inspiration” from his account and from the practice of comprehensive utilization. Hua furthermore contended that if they follow Mao’s teaching of “When Marxists look at a problem, they must not only see the part, but also the whole,” they will see that refusing to treat pollution in favor of increasing production will lead to more and more pollution, eventually hurting production even more down the line.

In this way, Hua realized that Liu Shaoqi's counter-revolutionary revisionist line still existed in his factory, in the form of people who dealt with the "three wastes" too passively, turned a "blind eye to people's health", prioritized production over everything else, and said pollution was inevitable. After all, a blind preoccupation with production and the "fear of losing money" was a "capitalist management technique". Hua critiqued their defeatist sayings that he heard on the factory floor, like "What factory doesn't emit smoke? What workshop has no waste liquid?" ["哪个工厂不冒烟, 哪个车间无废液?"]. These questions belied an unserious, defeatist attitude, he claimed. What then was the correct attitude, the correct political line toward the "three wastes" problem? "The correct attitude towards the 'three wastes' problem," Hua concluded from his experience, "is first to admit it, then not to be afraid of it, and then to overcome it."

Joshua Goldstein noted that often in Mao era China, the Party-state extracted more labor from people by using the "sleight of hand" of political commitment. Because recycling was "often the focus of mass mobilizations of voluntary labor" it also raised questions as to whether recycling was more a "public performance of citizenship or paid work." By framing labor as a crucial part of fulfilling the political duty of improving the national economy, the Party-state was able to elicit more work from people who otherwise saw activity like recycling—or in this case, innovating some use for the "three wastes."<sup>211</sup> We can see a similar process at play here, wherein Hua sought to overcome resistance to comprehensive utilization on the grounds that it was inevitable anyway—why waste time fighting it? A similar complaint about comprehensive utilization, criticized in a speech by Li Xiannian at the NCEP in 1973 was that the actual product

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<sup>211</sup> Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing*, 127-128.

gained by comprehensive utilization was so small that it was like spending time “picking up sesame seeds.” From this perspective, articulating the correct political line on “three wastes” issues was not a mere ideological question, but was also about framing the extra labor that comprehensive utilization required in a way that did not seem extractive or unjust. There was ongoing resistance to the extra labor of comprehensive utilization throughout the remainder of the Mao period, based on beliefs that pollution was inevitable, that the yields of comprehensive utilization were not worth the effort, and that production and pollution prevention were dichotomous such that one had to choose one or the other.

Hua Qingyuan also emphasized the role of the masses and everyday workers in solving the problem of public hazards, criticizing expert and technocratic approaches:

The solution to hazards cannot be devised by only a few people sitting in an office and contemplating, nor can it be designed only by a few experts behind closed doors. The ones that hate the “three evils” the most and know how to eliminate them best are the masses of workers with the highest political and ideological awareness and the most practical experience in production. Without them, even minor difficulties may block your progress; relying on them closely, no matter how difficult the difficulties are, you can overcome them.<sup>212</sup>

The class politics of knowledge production and science is a prominent theme in studies of socialist era science in China.<sup>213</sup> *Tu* (土) and *yang* (洋) was one such binary, with *tu* referring to

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<sup>212</sup> Qingyuan 华庆源 Hua, “Zongheliyong Yao Xinglichuhai 综合利用要兴利除害 [Comprehensive Utilization Promotes Benefits and Eliminates Harm],” *Hongqi 红旗 [Red Flag]*, October 1971.

<sup>213</sup> Fa-ti Fan, “Redrawing the Map,” *Isis* 98, no. 3 (September 1, 2007): 534.

“a cluster of related meanings (native, Chinese, local, rustic, mass, crude)” that was opposed by “yang (foreign, Western, elite, professional, ivory-tower)” to form a radical science that emphasized the central scientific role of the masses in pursuit of “socialist revolutionary goals.” *Tu* and *yang* also mapped onto the better-known binaries of Maoist science, like red vs expert and politics vs expertise.<sup>214</sup> These binaries shaped Hua’s theorization of what constituted revolutionary, socialist environmentalism. According to Hua, pollution problems can only be resolved by enlisting factory workers, who have practical experience working with pollutive substances and who are the most ideologically aware given their class identity. It was only through mobilizing the masses to “propose projects, create experiences, and pool ideas,” Hua wrote, that “revolutionary spirit of changing the world among the workers could sweep away the mental state of ‘doing nothing’.”<sup>215</sup>

The fact that the Party-state first promoted the correct political line on comprehensive utilization as coming from a technician at a factory in Shenyang shows how it, at least in theory, the Party-state privileged the experiential knowledge and correct revolutionary consciousness of the industrial working class. A representative of the industrial “masses” (Hua Qingyuan) responded to Zhou Enlai’s call to eliminate the “three wastes” by synthesizing his experiences of his factory’s struggle with pollution with Mao’s words and Maoist theory. In turn, the Party then gave Hua’s theorization of the correct political line a national platform in *Red Flag*, which other factories around the nation followed in innovating their own practices. In this way, the mass line formulated a method of addressing environmental issues that, in theory, prioritized the needs,

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<sup>214</sup> Sigrid Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China* (University of Chicago Press, 2016), 34.

<sup>215</sup> Hua, “Zongheliyong Yao Xinglichuhai 综合利用要兴利除害 [Comprehensive Utilization Promotes Benefits and Eliminates Harm].”

concerns, and revolutionary knowledge of the masses. Of course, without doubting his sincerity, Hua Qingyuan's conclusions would have been greatly constrained by Maoist ideology and conceptual frameworks—the Party would not have published something that contradicted Zhou Enlai's call to eliminate the industrial “three wastes” through comprehensive utilization. Nonetheless, it gave the project the patina of the mass line.

The correct political line formulated by Hua was reiterated in numerous subsequent municipal and provincial reports on “three wastes” activity, often (but not always) appearing as an introductory essay to a collection of reports. The QRC noted, for example, that due to the “interference and destruction of liars and traitors like Liu Shaoqi” who had obscured “three wastes” work,

...some ground water sources, near-shore sea water, and tidal mudflats are polluted. A portion of house foundations and underground pipeline facilities are corroded [腐蚀]. Jiaozhou Bay's (胶州湾) aquatic products (水产品) are constantly decreasing. Smoke and dust from factories pollute the surrounding air, which not only reduces the output of nearby crops, but also seriously affects the health of the people.

Likewise, the QRC cited many of the same counter-revolutionary slogans and ideas that Hua said obscured “three wastes” work in Shenyang:

Under the unity of the Ninth National Congress of the Party, the line of victory, and Chairman Mao's great strategy of “preparing for war, preparing for famine, and serving the people,” the working class in our city, who have been tempered by the Cultural Revolution, vigorously criticized the counter-revolutionary revisionist line of swindlers



like Liu Shaoqi, and criticized erroneous ideas such as “not attending to one’s proper duties,” “the gains do not make up for the losses,” and “we are powerless” [“不务正业”, “得不偿失”, and “无能为力”]. Following Chairman Mao’s teaching that “there is much to be done in comprehensive utilization”, they [the working class] took matters into their own hands, actively promoted comprehensive utilization, and earnestly managed the “three wastes”.

In the context of the Cultural Revolution, an important part of making industrial pollution and public hazards actionable problems was to associate ignorance of pollution and pollutive industrial practices with the incorrect political line. Just as China was not as economically advanced as the capitalist countries, so too their problems with the “three wastes” were not yet at the level of an insurmountable crisis. There was still the time and capacity to engineer solutions—so long as solutions followed the Maoist ideological and political line and did not follow the line of “revisionist liars like Liu Shaoqi”.<sup>216</sup> By repeating the association of a lackadaisical approach to industrial pollution with political enemies like Liu Shaoqi and capitalism more generally, Party cadres and factory workers across the nation concerned about pollution produced and reproduced the correct political line on industrial pollution.

#### *Mobilizing the Masses at the Shanghai Liaoyuan Chemical Factory*

A January 1972 report produced by the factory Party committee of the Shanghai Liaoyuan Chemical Factory (上海漵原化工厂 or SLCF) titled “For the people, eliminate the harmful and promote the beneficial” (为人民除害兴利) also reveals a great deal about how

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<sup>216</sup> “Qianyan 前言 [Intro].”

workers at the factory floor organized their efforts to eliminate the “three wastes” that emanated from their factory’s processes. Notably, the title of their report borrowed from the title of Hua Qingyuan’s *Red Flag* essay (综合利用要兴利除害) the four-character phrase “promote benefits and eliminate harms” (兴利除害), though reversed it. Their report was republished by the Guizhou Provincial Revolutionary Committee Construction Committee “Three Wastes” Office (贵州省革命委员会建委“三废”办公室) in January 1972. The SLCF claimed their report was a response to “Premier Zhou’s instructions on carrying out comprehensive utilization and treating the ‘three wastes’ in the industry” issued in March of 1971. In it, the SLCF provided a brief history and current state of “three wastes” struggle in their factory, explained why fighting the “three wastes” was essentially a “political battle”, and detailed how their factory leaders mobilized the masses. The SLCF framed their fight against the “three wastes” as focused on four strategies: reading Mao’s teachings about comprehensive utilization, criticizing the counter-revolutionary revisionist line (as formulated by Hua Qingyuan in his widely-published essay), practicing the principle of self-reliance, and mobilizing the masses.

Within their own factory, the SLCF identified that, after production at their factory greatly increased after 1949 (by a factor of 100), there had been people who promoted incorrect ideas like “production first,” “profit in command,” and “experts managing the factory.” These ideas led to a dire situation:

Originally, there were only three types of products, but now with the leaps and bounds in production and development, there are over ten, including caustic soda, chlorine, polyvinyl chloride, nylon 66, and more. With this, the three industrial wastes have also increased. There are waste gases in the air, wastewater underground, and waste residue

on the ground, with red, yellow, white, and black varieties all present. As our worker comrades say, “Flying in the sky and running underground, there are several black dragons and red dragons” [天上飞, 地下跑, 黑龙红龙好几条]. Over ten thousand cubic meters of harmful gases were discharged into the atmosphere every day, over ten thousand tons of industrial wastewater were discharged into rivers, and hundreds of tons of waste residue were released, polluting the environment, hurting people’s health, damaging crops, and corroding sewers. The problem of the three industrial wastes hazard became prominent and urgently needed to be solved.

Drawing on aforementioned *tu* vs *yang* and red vs expert binaries, the reports’ authors emphasized that widespread pollution also stemmed from the failure to incorporate the “wisdom of the masses”, writing:

Sometimes, the handling of waste disposal also tends to follow the expert route, detached from reality and not utilizing the wisdom of the masses. Measures are taken that are often focused on being large-scale, foreign, and comprehensive, without harnessing the power of “small *tu* groups”.<sup>217</sup> Innovative suggestions put forth by workers are often regarded as “unscientific”, “too simple”, or “unsafe” and are thus delayed or not adopted, resulting in our factory’s failure to effectively solve the problem of hazardous waste for a long time.<sup>218</sup>

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<sup>217</sup> Literally small “soil” groups/小土群, but better translated as “indigenous”.

<sup>218</sup> Shanghai liaoyuan huagongchang 上海潦原化工厂 [Shanghai Liaoyuan Chemical Factory], “Wei Renmin Chuhai Xingli 为人民除害兴利 [For the People, Eliminate the Harmful and Promote the Beneficial],” in *Sanfei Zongheliyong Ziliao Xuanbian 三废综合利用 [Comprehensive Utilization of the Three Wastes]* (Guizhousheng geming weiyuanhui jianwei 贵州省革命委员会建委 “三废” 办公室 [“Three Wastes” Office of Guizhou Provincial Revolutionary Committee Construction Committee], 1972).

“*Tu* groups” referred originally to the method of using steel furnaces run by the masses with indigenous methods (so-called “backyard steelmaking”) in pursuit of the Great Leap Forward’s ambitious steel production goals, and was juxtaposed by the “foreign group” [洋群] methods, referring to foreign, often larger-scale, methods of steel production. Though these were at times juxtaposed or one privileged over the other, they were also often encouraged to develop simultaneously as “the unity of the opposites” [对立统一]—as Mao articulated in a speech on December 1958 at the Sixth Plenary Session of the Eighth Central Committee.<sup>219</sup> The plan of using both *tu* and *yang* in an integrated fashion was used in other scientific realms too, like in the development of insecticides.<sup>220</sup> Regardless, we can see from this account at the SLCF how Marxist dialectics in the form of the *tu/yang* binary shaped interpretations of environmental problems at the factory level: the imbalance between the “indigenous” and “foreign” methods at the SLCF explained why the “three hazards” had occurred, and similarly provided an answer as to what the solution to them ought to be.

Marxist dialectics also shaped the SLCF’s approaches to dealing with pollutant substances themselves. In their view, scientific knowledge about the dangers of certain pollutants had now created new binaries like “waste” vs “treasure” and “harm” vs “benefit”. They attached to these binaries a quote by Mao from his famous essay “On Contradiction”: “the two contradictory sides, in certain conditions, can transform into each other.” From this they determined that through “revolutionary practice” industrial “waste” could be turned into “treasure” and “harm” into “benefit”. The questions were, one, whether to eliminate the “three

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<sup>219</sup> Mao Zedong, “Zai Ba Jie Liu Zhong Quanhuishang de Jianghua 在八届六中全会上的讲话 [Speech at the Sixth Plenary Session of the Eighth Central Committee],” Marxists.org, 1958, <https://www.marxists.org/chinese/maozedong/1968/4-095.htm>.

<sup>220</sup> Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China*, 133.

wastes” hazards or to let them “flow freely” and, two, whether to deal with them “passively” or to comprehensively utilize them in making some other product or commodity. Their “old routine” had been to neutralize pollutants with acid and alkali, dilute them, and then somewhere discharge them [酸碱中和, 稀释后放掉]. The problem with this “old routine” was that the wastewater was still released in the end, and moreover a large amount of “precious raw materials such as acid and alkali” would be lost in treating the wastewater. This would result in an endless cycle wherein—to borrow their phrase—“water would be added to flour, which would then need more flour to be added to the water” [水多加面, 面多加水]. This phrase itself suggests also how folk knowledge or idiomatic knowledge was incorporated into Maoist approaches to environmental pollution. In other words, their old routine would lead to a vicious circle wherein the process of treating wastewater just made more wastewater, which you would then have to treat again, ad infinitum. Having posed this conundrum to the factory workers, “everyone proposed that we must eliminate the wastewater in the production process, firstly by eliminating the source of wastewater production and then by actively making use of it.” One of the factory’s “three-in-one teams” ultimately innovated a way to eliminate wastewater, though they cautioned that many “three wastes” problems remained unsolved: like cooling chlorinated water, underground sewage, chloroform waste, carbide slag, nylon waste, and others.

Following this logic, the SLCF Party Committee recounted how they did four things in response. One, they held study classes. Framing the elimination of the three wastes as first and foremost a political and “thinking problem” (思想问题), they held study classes with “party branch secretaries, production managers, workers, and technical personnel representatives of each workshop.” At these classes, they studied Mao’s relevant teachings, from which they

learned that Chairman Mao had actually said many times in the past that comprehensive utilization was important. The classes also engaged in self-criticism, asking themselves:

Why didn't we follow this command? [Mao's call for comprehensive utilization] Not only did we not do big things, we also didn't do small things... We turned a blind eye to the interests of the people, why did we not solve the harm of the "three wastes" for such a long time? Through study and revolutionary criticism, we realized that in our factory there had been one-sided pursuit of the product output value and profit, disregarding the "three wastes" affects on the people, and lacked feeling when we saw the harm it caused. This was a manifestation of the lack of proletarian sentiment and a violation of Chairman Mao.

During these classes, "everyone" in their factory "compared the serious harm caused by the industrial 'three wastes' in capitalist countries such as in the West and Japan" through which they learned that it was impossible to solve the "three wastes" under capitalist systems. Through discussing the nature of public hazards in capitalist countries, the factory was able to "improve the workers' ideological understanding." As a result, "everyone made up their minds to fight the elimination of the 'three wastes' as a political battle."

The living memories of older workers who had worked in factories before 1949 were also utilized in some of these sessions.

Through learning, exposing, criticizing, and discussing, some comrades deeply felt that "this is a living education about ideology and the line. In the past, we fell into the trap of revisionism and did not feel the harm of 'three wastes', but today we are determined to

eliminate them and benefit the people.” Many old workers also compared and recalled the crimes of the old society’s capitalists who only cared about making money and disregarded the life and death of workers. This raised the issue of “three wastes” to the level of the struggle between two social systems and two lines.<sup>221</sup>

There has been much research done on different ways in which historical traumas and memories were mobilized for nation-building or modernization projects in China’s past. In the socialist period, the Maoist emphasis on class struggle shaped how people were asked to remember the past. Mao believed that the socialist transformation of China required a transformation of people’s consciousness and a revolutionary rewriting of history and memory. Historian Guo Wu has written about the development of “recalling bitterness” campaigns in the 1960s, which he described as a “grassroots-level cultural movement” wherein workers were asked to recall, often in performative fashion, their negative experiences and memories in the “old society.” Guo explains these political rituals were “aimed at reenacting class struggle and reinforcing class awareness by invoking collective memory.”<sup>222</sup> Here we see evidence that such “recalling bitterness” rituals were used as a way to mobilize people around environmental issues like industrial pollution. In this case, oral retellings used the association of China’s pre-1949 period with capitalism—especially in Shanghai—alongside the broader critique of public hazards in capitalist countries to make fighting pollution and protecting the environment a revolutionary act.

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<sup>221</sup> Shanghai liaoyuan huagongchang 上海漕原化工厂 [Shanghai Liaoyuan Chemical Factory], “Wei Renmin Chuhai Xingli 为人民除害兴利 [For the People, Eliminate the Harmful and Promote the Beneficial].”

<sup>222</sup> Guo Wu, “Recalling Bitterness: Historiography, Memory, and Myth in Maoist China,” *Twentieth-Century China* 39, no. 3 (September 15, 2014): 247.

In addition to classes, a second way the SLCF Party Committee mobilized the masses was to mobilize “backbone leaders” at all levels to inculcate the “broad masses of workers” an understanding about the political significance of fighting the “three wastes.” This was achieved through asking factory workers to write “determination letters” (决心书), wherein they publicly expressed their vow to “change the three wastes into three treasures.” A third method of mobilizing the masses was to emphasize the role of “three-in-one teams” based on workers at the center, accompanied by cadres and technicians. In this way, “technicians and workers worked together, actively participating in technical work such as design, calculation, and drawing.”

The fourth and final method was to focus on self-reliance and simple solutions—specifically relying on *tu* (indigenous) methods (土法上马, as they put it). The SLCF report gave an example of how they implemented this approach and why giving play to the indigenous method was better than following the big foreign methods (大洋法) they previously employed to remove coal dust. The latter again refers to professionalized, expert-managed, technical, larger-scale, and typically foreign production practices.

Our factory’s boilers burned approximately 140 tons of coal per day, emitting black smoke day and night. The smoke and ash not only affected the living environment and hygiene of nearby residents but also affected the quality of products in other factories. In the past, a small group of people came up with a “big foreign” [大洋全] dust removal plan, but it was all just talk on paper, and we still emitted smoke. During the mass “three-waste” campaign [of early 1971], the power plant set up a “dust removal struggle team” [除尘战斗组], fiercely criticized the revisionist line of “experts managing the factory” and “big foreign” plan, and was determined to take matters into their own hands. Some



people said, “Aren’t chimneys meant to emit smoke?” The members of the struggle team wanted to control the “Black Dragon,” [coal pollution] and they said, “No difficulties can stop us! Daqing people relied on the ‘two-in-one’ method to extract oil from the wilderness, and we can also use the ‘two-in-one’ method to control the ‘Black Dragon.’”

After completing 36 comprehensive utilization projects based on these principles and methods, the SLCF claimed that many harmful gases, especially chlorine, once emitted by their factory were now much lower even than the industrial hygiene standards stipulated by the state. They proclaimed that it was not even possible to detect chlorine gas 500 meters from their plant.

The report concluded with their suggested standards regarding “three wastes” problems going forward: (1) harmful gas should meet hygiene standards; (2) hazardous wastewater should no longer endanger nearby buildings; (3) the environment should be clean and tidy, including greening of the factory grounds; (4) the masses around the factory must be satisfied; (5) there should be a technical inspection system to supervise wastewater and waste gas discharge. Lastly, they suggested that factory workers should consult the masses frequently, by “often visiting nearby residents, farmers, and other factories to listen to their opinions.”<sup>223</sup>

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<sup>223</sup> Shanghai liaoyuan huagongchang 上海漕原化工厂 [Shanghai Liaoyuan Chemical Factory], “Wei Renmin Chuhai Xingli 为人民除害兴利 [For the People, Eliminate the Harmful and Promote the Beneficial].”

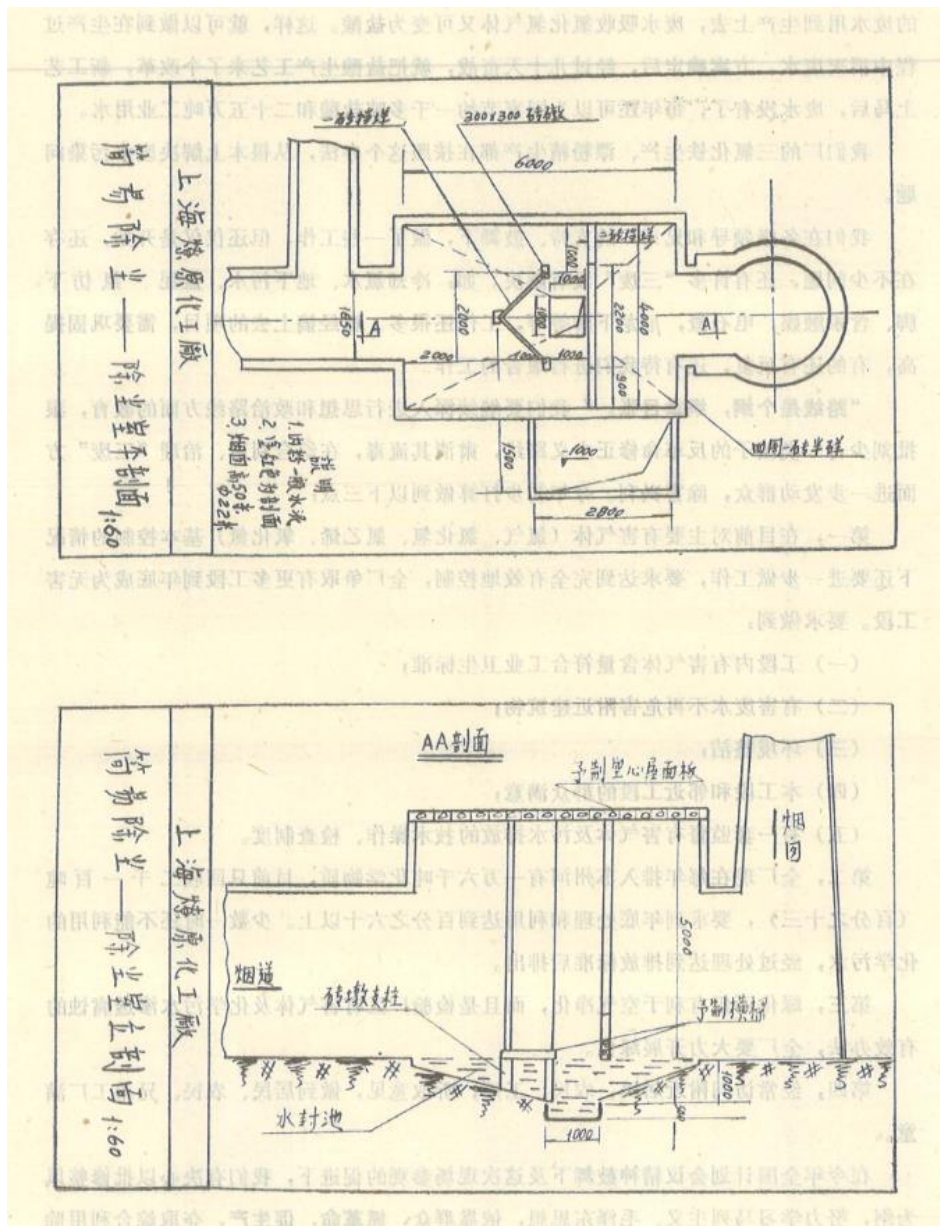


Figure 2. Sketches from the Shanghai Liaoyuan Chemical Factory depicting their innovation of a “dust removal room (除尘室)”. The top is an overhead view, the bottom is a cross-section.

## Conclusion

I have shown in this chapter that the fight against the industrial “three wastes” was deeply intertwined with social and political revolution. Comprehensive utilization was the essential practice at the heart of Maoist environmentalism—the practice that made Chinese approaches truly different from those in capitalist or socialist-revisionist countries. Mao’s theories about comprehensive utilization, stemming from the economic goals and limitations of the first PRC decade, were updated and reemployed as a politically correct solution to simultaneously eradicating harmful pollution and increasing production. His theories about dialectical materialism and the nature and role of contradictions in society were used to theorize the causes of pollution in capitalist countries and in China.

However, I have also shown here how the new political and scientific facts of pollution constructed and gave rise to a number of revolutionary and counter-revolutionary contradictions and binaries: humans vs nature, capitalists vs workers, experts vs non-experts, *tu* vs *yang*, waste vs treasure, surmountable vs insurmountable, and harm vs benefit—to name a few. Just as Mao argued the key to understanding and resolving social problems was through identifying the principal contradiction in any given situation, the key to resolving industrial pollution both globally and in China would be in resolving these contradictions.

Maoist political culture furthermore influenced responses by using the mass line to formulate the correct political line against public hazards. The Maoist belief that theory must be tested and refined through practice, and that it was only through the practical struggles of the masses that social progress could be achieved, shaped how comprehensive utilization practices were innovated at the factory level by workers. The struggle to accelerate agricultural and

industrial production was another filter through which the nature of environmental problems was defined. The goal ultimately was not to trade economic development for protection against environmental pollution (or vice versa). Rather, it was to use science, technology, and collective action to transform the material conditions from which public hazards arose. In this way, solving the environmental and health problems related to industrial development became, as Liu Dongsheng put it, “a major issue related to the superiority of the socialist system...a question of our guiding principles.”

## CHAPTER 5 – Branching out from the Factory: Connecting Global Environmental Science with Mao’s Revolution

### I. Introduction

Whereas chapter four looked at environmentalist activity in the industrial front, this chapter looks at environmentalist activity in the intellectual and scientific realms prior to the NCEP. In the first section, I discuss an important development and driver of Chinese environmental thinking before the NCEP: the concept of “public hazards” (*gonghai* 公害) and repeated acts of comparison that placed “public hazards” in China in contrast to “public hazards” in capitalist countries. After the NCEP, *huanbao* would eventually subsume *gonghai* as a framework for understanding industrial pollution and other environmental problems that threatened the health of China’s citizens. Here, however, for a brief period it offered a competing framework through which to view the interconnected material webs that constituted China’s industrial-natural-human landscapes. By translating self-critical accounts of public hazards produced in capitalist countries, Chinese theorists produced evidence of the contradictions and exploitive nature of capitalism. However, by reproducing capitalist countries’ self-critiques of their own environments and giving them weight, Chinese theorists also established the environmental concepts behind the critiques as legitimate, allowing them to be applied to China’s environmental context.

A second section provides a study of how Chinese scientists and researchers encountered new environmental concepts through engaging their own global disciplines of knowledge. Researchers at the Beijing Forestry Institute, for example, translated foreign materials as a

method both to critique capitalism *and* to promote foreign lessons and knowledge on forestry practices for Chinese use—or as they called it: “making foreign things serve China” (洋为中用).

By doing so, they linked their own domains of knowledge and expertise to public hazards, broadening the array of knowledge disciplines that were seen as germane to environmental issues. Many of the foreign lessons and ideas that Chinese disciplinary experts translated are now familiar to us, ideas like “ecology” or “biosphere.” The translation of such concepts in turn helped bring the Maoist environmentalist project outside the factory and to make it even *more* holistic and comprehensive than just comprehensive utilization. But this process also created stronger distinctions between *tu* and *yang* approaches to environmental problems as these concepts necessarily invoked expert-based and foreign approaches to environmental problems that threatened the centrality of worker and indigenous-based approaches.

## II. “The Incurable Disease of Capitalism”

*Critique and Comparison to “Foreign Situations” before the August 1973 NCEP*

One way to get at the shift in thinking about this new category of problems caused by industrial processes is to look at how the content of academic and industrial trade journals dedicated to issues that we now consider to be in the domain of “environmental protection”, but were not so called at the time. One such journal was *Metallurgical Safety* (冶金安全), which began publication in January 1971. In 1985 it was retitled *Industrial Safety and Environmental Protection* (工业安全与环保), evidencing the creeping hegemony of *huanbao* across the 1970s and 1980s. Since the journal’s inception, it published a section of articles documenting foreign developments in metallurgical safety practices and ideas. In 1971, these focused exclusively on

documenting foreign technologies and technical improvements, like “Usage of a foam generating device to suppress dust in joint tunneling with a tunnel boring machine in the Soviet Union” or “Improvement of dust prevention effectiveness in rock drilling.” However, the second 1972 issue saw a new type of article and a new term published under the heading of “Foreign Developments” (国外动态): articles that dealt with analyses of “public hazards” in foreign countries.

An article titled “Foreign Industrial Public Hazards” (“国外工业公害”) was written by the journal’s editors. They defined this new term “industrial public hazards” for its readership:

These so-called “industrial public hazards” (工业公害) mainly refer to the harm caused to human health, living organisms, and the environment by air pollution, water pollution, and soil pollution, [i.e., the three wastes] as well as other factors such as noise, vibration, land subsidence, slag damage, and odor...In capitalist countries, and in the Soviet Union and Eastern European countries ruled by revisionist blocs, public hazards have become an insurmountable social problem.

Drawing on foreign newspapers and periodicals, the authors identified a litany of public hazards in capitalist and “revisionist bloc” countries linked to industrial development. They summarized the public hazards of carbon dioxide in Japan and West Germany, the long history of serious air pollution in London caused by burning coal, and smog in Los Angeles. They noted that the Kremlin had also failed to enforce anti-pollution measures on the Volga River, bringing the river to the “brink of destruction.” This was evidence, they argued, of the Soviet Union’s revisionist

tendencies. They discussed also the “Big Four” pollution diseases of Japan like the infamous itai-itai (“ouch-ouch”) disease in Toyama, Japan caused by the long-term cadmium pollution of local waterways by mining companies. The editors noted also the long list of laws and statutes that capitalist countries had implemented to correct these problems, which they concluded would be “dead letters,” doomed to failure as they did not eliminate the real structural problems of capitalism that were behind environmental problems.<sup>224</sup>

Another article published in the February 1972 issue of *Metallurgical Safety*, titled “Pollution is the Incurable Disease of Capitalism” (“公害”是资本主义的不治之症), echoed the dire evaluation of public hazards in capitalist countries:

At present, in capitalist countries, “public hazards” are rampant and shocking. It has become an increasingly serious social problem that threatens people’s survival. According to foreign newspapers, in the United States, about 200 million tons of pollutants fly into the air every year. Many cities are shrouded in a thick smog of poisonous smoke, and some residents have died of poisoning due to air pollution. Due to the injection of a large amount of industrial wastewater, half of the rivers in the United States have become poisonous, and a “drinking water crisis” has occurred... In some parts of Japan various “pollution diseases” are prevalent, and the victims shout angrily “give me back the clear sky,” “give me back my river,” “give me back my life” in order to fight for the air and water necessary for survival.

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<sup>224</sup> Benkan bianjizu 本刊编辑组 [Editorial Team], “Guowai Gongye Gonghai 国外工业公害 [Foreign Industrial Public Hazards],” *Yejin Zhian 冶金安全 [Metallurgical Safety]*, no. 2 (1972): 40–49.



This article was written by the Beijing Petrochemical Factory Workers' Comment Group (北京石油化工总厂工人评论组 or BPFWCG)—a factory Zhou Enlai toured many times, often on the occasion of a visit by a foreign dignitary. For example, while hosting Ethiopian Emperor Haile Selassie in October 1971, Zhou made repeated appeals to workers and cadres there to fix the pollution caused by their factory. The BPFWCG was thus a work unit whose activities were called into question by the problem of “industrial public hazards”. Like the journal’s editors, the BPFWCG theorized that public hazards were fundamentally a struggle between the working classes and capital:

In order to maximize profits, the bourgeoisie don't even consider whether the broad masses of the people are harmed. Since the treatment of industrial waste gas, waste liquid, and waste residue is unprofitable, or unable to obtain the maximum profit, capitalists will certainly not “promote what is useful and get rid of what is harmful” (兴利除害). In capitalist countries, the first victims of “public hazards” are workers and the working masses. Many of them can only live in places with dirty air and drink polluted water. The capitalists can live in luxurious buildings with purified air, or move to country houses with clean air and drink “bottled water”. Therefore, the growth of “public hazards” will inevitably intensify the class contradictions in capitalist society.

By linking the political and social origins of “public hazards” that were so suddenly rampant in capitalist countries to class contradictions, Maoists thinking about the environment developed the political logic behind a distinctly Maoist environmentalism. In a capitalist system, the BPFWCG

contended, there is no profit incentive to clean up or stop pollution that disproportionately affects workers. As such, China's advantage is that its socialist system does not operate on the profit motive and so can develop systems and practices that deal with non-profitable pollutants. According to the BPFWCG, the most important of these was the practice of "comprehensive utilization":

In contrast, in a socialist society, the means of production are in the hands of the state and the working people, and the anarchy of production produced by capitalist private ownership is replaced by planned production under socialist public ownership. The purpose of socialist production and construction is to seek the interests of the broad masses of the people. This has opened up a broad way to eliminate industrial waste pollution and carry out comprehensive utilization. In our country, while developing socialist industry, the Party and the government attach great importance to the comprehensive utilization and purification of industrial waste gas, wastewater and waste residue...The sewage discharged from the refinery of our factory can be used to irrigate the nearby fields after treatment, turning harm into profit, and is welcomed by the masses...The stark contrast between the systems profoundly illustrates the decay and inescapable crisis of the capitalist system, and the incomparable superiority of the socialist system. "Public hazard" is an incurable disease of capitalism, it is impossible to solve it under the capitalist system... Facts are educating the broad masses of working

people in capitalist countries that only by burying the evil system of exploitation can society's "public hazards" be completely wiped out.<sup>225</sup>

The *Metallurgical Safety* editorial team also critiqued the new multidisciplinary scientific approaches to solving environmental problems, framing them as merely superficial technical solutions that would not fundamentally change anything:

In recent years, new disciplines such as "Environmental Science", "Human Science" and "Safety Engineering" have emerged abroad, mostly for the simple prevention of public hazards, but simple prevention cannot fundamentally cure them. The fundamental way to prevent pollution problems is to comprehensively utilize resources, turn waste into treasure, and turn harm into benefit. However, the nature of monopoly capital groups in capitalist countries is profit-seeking. Although they have also noticed the importance of comprehensive utilization in preventing public hazards, they are bound to be rejected due to the large investment required and the low profit of recycled materials. This is the crux of the increasingly serious public hazards in capitalist countries.<sup>226</sup>

Just as Maoist "self-reliant science" was marshalled in offering "an alternative model for Third World countries," so too Maoist *huanbao* signified an attempt to construct a "third way" of environmentalism.

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<sup>225</sup> Beijing shiyou huagong zongchang gongren pinglun zu 北京石油化工总厂工人评论组 [Beijing Petrochemical General Works Workers Comment Group], "'Gonghai' Shi Zibenzhuyi de Buzhizhizheng '公害'是资本主义的不治之症 ["Public Hazards" Are an Incurable Disease of Capitalism]," *Yejin Zhian 冶金安全 [Metallurgical Safety]*, no. 2 (1972): 39, 49.

<sup>226</sup> Benkan bianjizu 本刊编辑组 [Editorial Team], "Guowai Gongye Gonghai 国外工业公害 [Foreign Industrial Public Hazards]", 49.

*An “Insurmountable Social Crisis”*

China had public hazards too, however, as made scientific and political fact following the nationwide investigations into the “three wastes” following Zhou Enlai’s March 1971 instructions on carrying out the comprehensive utilization of the industrial “three wastes.” The subsequent issuance of Document 131 in April 1971 and the workshops in Beijing hosted later that year by the Military Administration of the Ministry of Health further established environmental pollution as a growing concern. As such, throughout China up until the NCEP in August 1973, factories, hygiene bureaus, and provincial and municipal governments engaged in a “mass movement” to comprehensively utilize and eliminate the “three wastes”. In June 1973, the Hubei Science and Technology Information Institute (湖北科技技术情报研究所) described the ongoing campaign in the following way:

Under the guidance of Chairman Mao’s great strategic policy of “preparing for war, preparing for shortages, and serving the people”, our country’s industrial front is launching a mass movement to comprehensively utilize, eliminate, and transform the “three wastes”. This is of great significance for developing socialist construction, strengthening the worker-peasant alliance, and consolidating the dictatorship of the proletariat. Carrying out comprehensive utilization and eliminating the hazards of “three wastes” is a major scientific and technological issue as well as a serious political task.<sup>227</sup>

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<sup>227</sup> “Bianzhe de Hua 编者的话 [Editor’s Note],” in *Sanfei Zongheliyong Ziliao 三废综合利用资料选编 [Selected Materials for Comprehensive Utilization of Three Wastes]* (Hubei keji jishu qingbao yanjiusuo 湖北省科技技术情报研究所 [Hubei Science and Technology Information Institute ], 1973).

As part of this movement, in September 1972 the Technology Division of the Production Command Headquarters of the Qingdao Revolutionary Committee (青岛市革命委员会生产指挥部科技组 or QRC) published a collection of recent local reports about accomplishments in “comprehensive utilization” and the “treatment of the three wastes”—titled “Selection of ‘Three Wastes’ and Comprehensive Utilization Materials from Qingdao” (青岛市“三废”综合利用资料选编). The QRC began the introduction of their collection in a familiar way, by noting that despite the growth of “three wastes” problems in China, the situation was worse in capitalist countries:

Industrial “three wastes” (wastewater, waste gas, and waste residue) damage people’s health, endanger industrial and agricultural production, and destroy aquatic resources. They have become *public hazards* [my emphasis] in capitalist countries (especially the United States and Japan). In the big cities and industrial concentrated areas of these countries, the sky is full of poisonous smog, the ground is full of garbage, the rivers and seas are all polluted, and the fertile land is now poor due to corrosion. This brings serious disasters to the working people and has become an insurmountable social crisis.<sup>228</sup>

The phrase “insurmountable social crisis” (成为无法克服的社会危机之一) is worth underlining here—a phrase used also by the editors of *Metallurgical Safety*. Environmental historians Paul

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<sup>228</sup> “Qianyan 前言 [Intro],” in *Qingdaoshi “Sanfei” Zongheliyong Ziliao Xuanbian 青岛市“三废”综合利用资料选编 [Selected Compilation of Materials on Comprehensive Utilization of “Three Wastes” in Qingdao]* (Qingdao geming weiyuanhui shengchan zhijunbu kejizu 青岛市革命委员会生产指挥部科技组 [Qingdao Municipal Revolutionary Committee Production Headquarters Science and Technology Group], 1972).

Warde, Libby Robin, and Sverker Sörlin have argued that in the West the “environment” was a “crisis concept” that was “born out of a sense of urgency in dealing with looming challenges of unusual magnitude.”<sup>229</sup> The environmental movement that emerged from the late 1960s and early 1970s was particularly effective in using the concept of an environment in crisis as a catch-all problem that could “absorb long-standing issues”, like protecting wildlife, natural spaces, and combating pollution.<sup>230</sup>

A sense of a global crisis was clearly articulated at and propagated by the UNCHE, which was covered exhaustively by the *People's Daily*. From early to mid-June 1972, the paper published articles about the conference nearly every day. Articles documented the delegation's activities in Stockholm—like the other diplomats they met and the banquets they attended. Articles also covered the content of the conference by reprinting speeches and quoting Chinese delegates' comments on the ongoing course of events. Coverage began with a May 31, 1972 article reporting on the PRC delegation's departure from Beijing to Stockholm. On June 11, *People's Daily* published in full Tang Ke's famous June 10 speech as well as an article praising the PRC delegation's success in establishing a special committee to revise the pre-conference draft. At the conclusion of the conference, a June 19 article cited the words of representatives from Pakistan, Ghana, Gabon, and Syria that imperialism and colonialism were the major causes of environmental problems globally and in their own countries. The article quoted representative Bi Jilong as saying, “In some industrially developed countries, due to the large number of harmful substances discharged they seriously pollute the environment of their own country and even neighboring countries, threatening and damaging the lives and properties of the people.”

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<sup>229</sup> Paul Warde, Libby Robin, and Sverker Sörlin, *The Environment: A History of the Idea* (Johns Hopkins University Press, 2018), 34.

<sup>230</sup> Warde, Robin, and Sörlin, *The Environment: A History of the Idea*, 123.

Open publicization of PRC participation at the UNCHE further established the Chinese position of accepting the fact of the global environmental crisis and of China's existence in it, but predominantly as a victim and champion of others who had been victimized by capitalism and imperialism. China was part of this world in crisis, but had a very different relationship to and place in it.

Overall, repeated acts of critique and comparison played a central role in the development of a Maoist theory of environmentalism that was distinct from the approaches taken in capitalist countries. By framing China's environmental challenges in comparison to those in capitalist countries, Maoist environmental theorists were able to argue for the superiority of socialism over capitalism and create political and intellectual space for a socialist approach—like comprehensive utilization—that reflected the unique characteristics of China's political and economic system. Theorists began the project of articulating an alternative environmentalism based on the collective ownership of the sources of pollution, the primacy of the public good, and the ability to integrate pollution concerns into central planning—all systemic advantages that capitalist countries could not draw upon. These acts of comparison were furthermore evidenced by grassroots environmentalist movements in capitalist countries and the translation of environmentalist print and scientific materials produced in capitalist countries themselves. Comparison and critique were thus a key intellectual engine of *huanbao* as it developed in the late Mao period.

### **III. Connecting the “Environmental Sciences”**

*Forestry and the Factory*

In June 1973 the Beijing Forestry Institute (北京林学院 or BFI) published an essay in the *Journal of Hebei Forestry Science and Technology* (河北林业科技) titled “Forests and Environmental Protection” (林木与环境保护). The essay aimed to provide a detailed summary of the “positive role of forests in environmental protection” based on their translation of “some foreign materials and combined with our country’s experience”. This, they wrote, was in line with the policy of “making foreign things serve China” (洋为中用).

The BFI researchers’ account reflected a close attunement to global developments in forestry science and its relationship to global discourses of environmental protection. They first defined environmental protection, emphasizing its newness, its scientific nature, and its multidisciplinary:

In the 1970s, environmental protection has become a brand-new scientific field, appearing on the international stage and attracting widespread attention from people all over the world...The basic task of environmental science is to study the law of the interaction of various factors in the relationship between humans and the biosphere, and actively control this law to create the most favorable environmental conditions for human production and life. Therefore, environmental science is an extremely extensive research field, involving many departments and branches of production and science. The fundamental solution to environmental protection problems also requires comprehensive measures in many aspects...Environmental science is a new research field emerging with the development of production and technology. Although many disciplines have been



exposed to this topic from different angles in the past, with the deepening of research on environmental issues, new explorations are required no matter in terms of research methods and research scale.

The editorial board of *Metallurgical Safety* had made similar conclusions in 1972 about the multidisciplinary nature of public hazards, writing “The issue of public hazards involves a wide range of disciplines, including medicine, agriculture, forestry, meteorology, metallurgy, chemical engineering, analysis and testing, and many other disciplines, all of which are closely related to each other.”<sup>231</sup> The notion that environmental protection was a matter of studying and controlling the scientific “laws” that govern the relationship between humans and the biosphere would have been appealing in the context of the broader culture of scientism that characterized the Cultural Revolution.<sup>232</sup> At the same time, that environmental protection is only a matter of progressively mastering the objective laws of the human-ecology relationship would turn out to be a foundational belief of environmental protection in China in the post-Mao period through to today.

BFI researchers also explained the role of forests in maintaining a “balanced biosphere,” like in preventing air pollution, improving water quality, and in improving agriculture and the productivity of animal husbandry. They highlighted new forestry policies and practices aimed at protecting the environment, citing developments in Sweden, Japan, the United States, and France. They also translated insights from papers presented at the September 1972 Seventh World Forestry Congress held in Argentina, which promoted the idea that environmental

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<sup>231</sup> Benkan bianjizu 本刊编辑组 [Editorial Team], “Guowai Gongye Gonghai 国外工业公害 [Foreign Industrial Public Hazards].”

<sup>232</sup> Chunjuan Nancy Wei and Darryl E. Brock, *Mr. Science and Chairman Mao's Cultural Revolution: Science and Technology in Modern China* (Rowman & Littlefield, 2013), 30.

protection should be a key fixture in forestry plans and that “maximum public welfare” should replace “maximum productive output” as a primary value in forestry.

The PRC representative at the Seventh World Forestry Congress dissented on the final declaration, though it is not clear on what premise. Tellingly, the declaration did not mention the environmental effects of imperialism in Vietnam, choosing to state instead: “The Congress is not a competent body to pass judgment on the political, economic and social objectives of government”—a point that PRC delegates at the UNCHE just several months prior repeatedly objected to. The BFI essay also criticized the Vietnam War’s effects on southeast Asia’s forests:

...during the war of aggression against Vietnam, the U.S. imperialists used a large amount of chemicals in the forest, causing the leaves to fall from the trees and destroying commercial timber, which can supply Vietnam’s needs for 31 years...Due to artificial defoliation, hectares of mangroves were completely destroyed, thereby destroying the ecological balance of nature.<sup>233</sup>

The Seventh World Forestry Congress furthermore cited the UNCHE declaration as the inspiration behind their own declaration, calling it marking a huge shift in “new knowledge, new preoccupations, and new aspirations” that forestry now needed to be in service of. In this sense, the Seventh World Forestry Congress offers yet another incidence showing how China’s political-social interpretation of the source of environmental problems was caged by the depoliticization of environmental problems that resulted from international diplomatic efforts to

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<sup>233</sup> Beijing linoxue yuan 北京林学院 [Beijing Forestry Institute], “Linmu Yu Huanjingbaohu 林木与环境保护 [Forests and Environmental Protection],” *Hebei Linye Keji 河北林业科技 [the Journal of Hebei Forestry Science and Technology]*, no. 3 (June 1973): 1–19.

unite against a global environmental crisis.<sup>234</sup> Still, the Beijing Forestry Institute saw value in other concepts mooted at the Congress, like the biosphere and the capabilities of forestry to solve public hazard issues. In this fashion, Chinese forestry researchers' participation in and awareness of global conferences allowed them to connect global advancements in their own knowledge discipline with ongoing domestic approaches to public hazards like comprehensive utilization of the "three waste". The intellectual stitching together of these different approaches to public hazards was crucial to the early formation of *huanbao*.

However, despite the lessons that they thought recent global forestry advancements held, they also emphasized their limitations in China's context, as well as China's unique conditions:

Although relevant foreign research can be used as a reference, due to differences in tree species and site conditions, conclusions from foreign countries cannot be copied mechanically. Especially due to the different social systems, there are also different directions in the prevention and control measures adopted. This requires us to explore the way to develop environmental science in our country in the spirit of self-reliance.

Scholars of science in China's socialist period have documented how the Maoist emphasis on self-reliance influenced other scientific disciplines. In *Red Revolution, Green Revolution* Sigrid Schmalzer argued that "Agricultural science in socialist-era China was highly transnational with deep connections to Western, especially US, scientific knowledge and institutional networks; it was also self-consciously self-reliant, as China sought to create *tu* science as an alternative to that wielded by capitalist and imperialist nations."<sup>235</sup> As evidenced in the views of these Chinese

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<sup>234</sup> J. A. Dickson, "Seventh World Forestry Congress," *The Commonwealth Forestry Review* 52, no. 1 (March 1973): 16–18.

<sup>235</sup> Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China*, 24.

forestry officials, these features also characterize the early development of environmental protection in the late Mao period.

BFI researchers explicitly framed their intended approach to using forestry practices to protect the environment as an alternative type of environmentalism. They critiqued imperialist countries which “claim to protect forests, but on the other hand they inhumanely destroy the forest resources of other countries on the land of other countries”—citing the use of agent orange and other chemicals in Vietnam. They emphasized that capitalist countries were limited by their social systems such that their technological advancements would ultimately be futile:

In a capitalist society, abnormally developed industries, highly populated metropolises, and capitalists’ plundering development and utilization of natural resources have caused a sharp deterioration of the environment and posed a serious threat to the lives of working people. Facing the “vengeance” of nature, capitalist governments are terrified... The public hazards of capitalist countries are the inevitable product of the decadent social system, and it is impossible for them to completely solve these problems... Therefore, the capitalist countries advocate some slogans such as “solve the problem of public hazards” and “the 1970s are the era of challenging public hazards”, just like their countless political slogans, these are just posturing to gain political capital.

The “superior” Chinese socialist system, however, was unhampered by the social limitations of capitalism, and so could offer an alternative environmentalism that could marshal technical solutions untrammelled by the priorities of capital.

Despite this rhetoric, the BFI researchers defined their new task in using forestry practices to confront public hazards in mostly scientific terms. Going forward their goals would be to:

- (1) research the basic laws of material and energy conversion in forest ecosystems in the biosphere
- (2) study the impact of pollution and harmful industrial substances on tree growth
- (3) study the purification effect on forest trees on pollution, including toxic gases
- (4) conscientiously summarize and conduct in-depth research on the role of forests in protecting the natural environment, especially water and soil conservation, wind protection, sand consolidation, climate regulation, and preventing urban fires
- (5) study the planning design and technical measures of afforestation of barren lands
- (6) biological pest control is an indispensable part of comprehensive environmental protection

The masses figured in their forestry plans more as objects of environmental science than as its subjects—as opposed to the mass campaigns for comprehensive utilization in the industrial front. BFI researchers explained that creating new forest belts would “greatly improve people’s lives, and the happiness brought to the people by the beautiful living environment full of trees and blooming flowers cannot be measured by economic effects.” Insofar as the masses figured into

their plans, it was through large-scale mass afforestation and greening campaigns, reminiscent of earlier campaigns called by Mao.<sup>236</sup>

This new approach to forestry, BFI researchers claimed, would help China to “march forward victoriously on the road of conquering nature.” Again, this militarized human versus nature binary has been conventionally used by scholars writing of the period as evidence of the essential ecologically destructive nature of Maoism. Here, however, we can see the flexibility (or tautology) of this binary at work here, as it was actually in this period being ideologically retrofitted to “fight” the rise of a new category of problems posed by the environment related to the downsides of industrial production. Of course, many environmental problems were actually results of the human versus nature binary that was at work in Mao’s mass campaigns. This point was not lost in Chinese environmentalists at the time. At the NCEP, many leaders admitted the environmental mistakes of the past decades, though not calling out Mao’s role in them explicitly. By 1973 then, humanity’s “conquering” of nature thus increasingly also meant, ironically, protecting it.

Moreover, the BFI researchers saw a clear throughline between the new demands placed on their work by the goal of environmental protection and previous Maoist campaigns that were not originally framed as doing environmental protection. They claimed that their desire to use forestry practices to reduce public hazards like air pollution, water pollution, deforestation, and to protect farmland, was actually rooted in previous Maoist afforestation campaigns:

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<sup>236</sup> For more on this, see: Susanne Stein, “Coping with the ‘World’s Biggest Dust Bowl’. Towards a History of China’s Forest Shelterbelts, 1950s-Present,” *Global Environment* 8, no. 2 (October 1, 2015): 320–48.

As early as 15 years ago, Chairman Mao issued a great call for “greening the motherland” and “practicing greenification of the earth”, saying “Within the limits allowed by natural conditions and human resources, green the barren mountains and wastelands. Plan to plant trees wherever possible, such as beside homes, villages, roads, and water bodies.” Chairman Mao’s great call not only pointed out the future direction of forestry development and demonstrated the beautiful vision of communism, but also had great strategic significance in solving environmental protection... Under the great call of Chairman Mao, after liberation, a large-scale mass afforestation and greening work was carried out across the country.

Mao’s vast corpus of proclamations and sayings were creatively used to justify an environmentalist ethos and practices. It also reflects how pre-existing Maoist campaigns like “greening the motherland” were imbued with a new kind of relevance—proving, in their view, Mao’s prescience and lasting relevance of his ideas. To this, they added that “the Party and the government have always cared about environmental protection.”<sup>237</sup>

Just a year prior in February 1972, the BPFWCG had stated that “new disciplines such as ‘Environmental Science’, ‘Human Science’ and ‘Safety Engineering’” were only superficial responses to public hazards and “cannot fundamentally cure them” in the way that comprehensive utilization could.<sup>238</sup> BFI researchers, however, claimed that preexisting industrial-focused methods on preventing pollution were also insufficient, signifying an

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<sup>237</sup> Beijing linxue yuan 北京林学院 [Beijing Forestry Institute], “Linmu Yu Huanjingbaohu 林木与环境保护 [Forests and Environmental Protection].”

<sup>238</sup> Beijing shiyou huagong zongchang gongren pinglun zu 北京石油化工总厂工人评论组 [Beijing Petrochemical General Works Workers Comment Group], “‘Gonghai’ Shi Zibenzhuyi de Buzhizhizheng ‘公害’是资本主义的不治之症 [“Public Hazards” Are an Incurable Disease of Capitalism].”

increasing tension between expert, foreign-based approaches to environmental problems (*yang*) embodied in environmental science versus indigenous, local, and worker-based approach (*tu*).

In the past, the prevention and control of environmental pollution has mainly relied on the improvement of industrial process flow, strict selection of factory conditions, limitation of sulfur content in fuel, comprehensive utilization and recycling of “three wastes”, etc. These measures are of course important and necessary, but they alone cannot completely solve the problem. Now more and more people are paying attention to the prevention and control of organisms. The use of forests as a powerful weapon to transform nature and purify the environment has become one of the central topics in the study of biological approaches in environmental protection. The forest is a powerful ecosystem, which occupies a special and important position in the exchange process of matter and energy in the whole biosphere and in maintaining the dynamic balance of nature.<sup>239</sup>

Through participating in global forestry conferences and translating foreign material, BFI researchers became aware of concepts like the “biosphere” and “ecology” as well as the scientific facts of forests’ capability to remove toxins and achieve balance between humans and the biosphere. These concepts allowed them to link their discipline to the broader issue of “public hazards” and in so doing make the case that comprehensive utilization and industrial management were themselves insufficient.

### *Geochemistry Makes Its Case*

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<sup>239</sup> Beijing linxue yuan 北京林学院 [Beijing Forestry Institute], “Linmu Yu Huanjingbaohu 林木与环境保护 [Forests and Environmental Protection].”



The very first issue of the journal *Environmental Protection* (环境保护) was published in early 1973, several months before the NCEP. In it, the well-known earth scientist Liu Dongsheng (刘东生)<sup>240</sup> based at The Institute of Geochemistry, in Guiyang, Guizhou, (中国科学院贵阳地化所, founded in 1966) published an essay in titled “Environmental Pollution and Environmental Protection” (环境污染与环境保护). Part educational, part persuasive, part political theory, the essay embodied many of the hallmarks of other literature produced in the new genre of Maoist environmentalism. Liu’s intent to simultaneously educate readers on recent global advancements in environmental science and persuade them of their relevance can be seen in section headings like “Basic summary of environmental problems”, “What is environmental pollution?”, “Environmental pollution problems are comprehensive in nature”, and “How to solve environmental problems.”

Liu began in a familiar way: by explaining the dire scale of environmental problems in capitalist societies and why environmental problems had suddenly so captured their imaginations.

Starting in the 1970s, confusion about “people and the environment” set in, which has become one of the main characteristics of scientific research in capitalist society. In capitalist countries, environmental issues are increasingly important to people. The

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<sup>240</sup> Liu Dongsheng is also known for establishing China’s first laboratory specializing in chemical analysis of environmental pollutants during the investigation of pollution in the Guanting Reservoir. He is credited for his early role in the development of environmental science. For more, see: <http://www.chiqua.org.cn/ldsxsjnz/sjj/dsnb/>

capitalist system is gradually collapsing due to the distorted development of industry, which exposes serious crises hidden in capitalist society.

Liu cited the familiar watershed events of the conventional environmentalist story told in the capitalist world: the Great Smog of London in 1952, the Minamata disease from consuming methylmercury from contaminated fish in Japan, and the publication of *Silent Spring* by Rachel Carson. Liu cited these incidences to show how “environmental problems are not just temporary pollution issues, but problems that destroy the environment and are often irreversible.”

Liu explained furthermore why China’s socialism could solve environmental problems where capitalism could not, once again demonstrating how Maoist environmentalism was constructed against the foil to globalizing capitalist environmentalism of the late 1960s and early 1970s. Liu presented environmental problems as a product of the capitalist system’s shortcomings and a manifestation of its inherent contradictions.

The environmental pollution caused by capitalist countries has caused dissatisfaction among the working people, and this issue has become a social and political problem that the ruling groups of capitalist countries are unable to control. As a result, many capitalist countries have organized research on this issue. However, scientific research under the capitalist system cannot completely solve the problem of the relationship between humans and the environment for the benefit of the people. It is largely a passive response to social opinion, and some people use this issue to propagate reactionary theories that suppress the development and industrialization of underdeveloped countries. Therefore, when understanding foreign environmental work, a critical attitude is necessary.

The Maoist engagement with this global environmental turn necessitated answering the question of what to do with foreign scientific knowledge about the environment—especially since environmental science as a field of knowledge itself was seen to have emanated from capitalist countries.

Liu furthermore drew on Marxist materialist theory to critique capitalist environmentalism and advocate for socialist approaches:

First, we should criticize all pessimistic and despairing views propagated by capitalist countries regarding environmental pollution and advocate the Marxist view that the natural world is constantly changing, and human understanding is also constantly changing. Humans will ultimately overcome environmental pollution. We are a developing country, and our industry is booming. Environmental pollution is not as serious as in capitalist countries. However, we are materialists who dare to face the pollution problem, can timely identify our own problems, fully recognize the harmful effects of pollution, and fully exert the superiority of our socialist system. We can mobilize the masses and implement multi-departmental cooperation to prevent problems before they arise. Following the guidance of Chairman Mao's "Our responsibility is to the people", we must be responsible to the people and to future generations. This is a major issue related to the superiority of the socialist system. It is a question of our guiding principles.

It is worthwhile to note here how Liu's interpretation of environmental problems in capitalist countries meant that the dangers posed by the failure to respond to environmental problems were apparently so great that they might call into question China's entire social, political, and

economic system. We see yet again the belief that environmental problems were not only a scientific or technical issue but also inherently a political and social one.

However, much like the BFI essay above, Liu sought to add a new dimension to China's approach to environmental problems: by advocating for an ecosystems-based framework of environmental problems and the array of different knowledge disciplines that needed to be mobilized in understanding and solving them. The problem that Liu faced in this regard was that comprehensive utilization projects based on the mass mobilization of factory workers did not directly invoke his scientific discipline (natural as it seems to us now) or privilege his professional expertise. Liu cut through this problem by emphasizing that comprehensive utilization still ought to be the principal approach to environmental problems and that insights from geochemistry could be subjugated to the broader comprehensive utilization project.

Comprehensive utilization of “three wastes” is the most fundamental method to protect the environment and eliminate pollution. The higher the degree of comprehensive utilization in industry, the less the three wastes will be. Not only can industry vigorously carry out the “three wastes” utilization, but also the sewage irrigation in agriculture and various “three wastes” in life can also be comprehensively utilized. This is an extremely important aspect of our country's environmental protection work.

To this point, he emphasized the diffuse spatial nature of environmental pollution, especially their regional and transnational nature that cannot simply be localized to factories. He explained:

Regional environmental problems often involve a wide range of areas, such as the upper, middle and lower reaches of a river, such as the Yongding River, or a bay, such as Bohai

Port, etc. Because rivers, air, oceans, etc. flow in a large area, the “three wastes” are often discharged from the upstream, causing damage to the downstream. Therefore, considering the problems of a place must also consider the problems that can affect its entire area. Its approach is the same as that mentioned above, but on a larger scale and with more consideration. Due to the large area, the natural atmosphere, rivers, plants, forests, and rocks in the stratum all have the ability to purify pollutants, and there are certain laws to be found in the movement of the atmosphere, water, and organisms. As long as the work in this area is studied under a unified arrangement, it can be solved more quickly if attention is paid to it.

Moreover, Liu argued that pollution was also global in scale and often transnational in nature—key ideas of the global environmentalist regime propagated by the UNCHE—meaning that simply better controlling China’s industrial processes would not ultimately be sufficient. Liu wrote:

Finally, there is the global pollution problem. Because the rivers flow to the sea, and the sea is connected and can affect different countries, and the atmosphere also surrounds the earth. Therefore, environmental pollution in one region may affect other countries. This phenomenon exists, and it is worth noting. But the capitalist and social-imperialist countries, especially the two hegemonic powers, saw the environmental pollution brought about by the development of industry, so they tried their best to distort facts, exaggerate the idea that pollution is inevitable, and propagandize that developing countries should not be industrialized. This is the logic of imperialism.

In points that appear strikingly contemporary, Liu went to explain in detail how pollutants from places like Los Angeles and Tokyo concentrate in the atmosphere and oceans, affecting the global climate. He emphasized that some foreign scientists were worried about the danger of global warming in the future, “It is estimated that in the future the concentration of these pollutants in the Earth’s atmosphere will reach a level where the average temperature will increase significantly, resulting in the melting of ice and snow at the poles, a rise in sea levels, and unpredictable changes in global weather patterns.” Because of his position as a geochemist, Liu also augured the early foundational ideas behind the concept of the Anthropocene—the proposed geological epoch in which human activities have become the dominant driver of changes to the Earth’s geology and ecosystems. He likened the amount of pollution produced by global human industrial activity to “the amount produced by natural volcanic activities and weathering” and claimed that “due to ‘atmospheric pollution,’ chemical elements in the earth’s crust are being moved around”. He punctuated this point with the exclamation that around the world “environmentalists demand that geological research should be carried out to determine the full extent of pollution damage caused by human industrial activities.”

In this way, Liu marshalled the authority of scientific facts to implicate the relevance of geochemistry to environmental problems. Because of their familiarity with studying the chemistry of earth systems, Liu explained that geochemists naturally ought to play a special role in the foundational “investigation work” about measuring and finding pollutants in China’s affected earth systems. He explained how this investigation work might operate in the context of Beijing:

For example, in order to find out the pollution of groundwater and air in Beijing, we must first find out how much sewage is discharged from factories, what poisons are in the sewage, how much smoke is discharged from the chimney, and what toxic gases are there besides dust. What is the effect of sewage irrigation? What is the impact of toxic components in sewage on food, vegetables, and fruits? How do we rationally design sewage pipelines? How does pollution infiltrate groundwater? Why are rhinitis and asthma are increasing in the western suburbs [of Beijing], and cancers also occur in some places. Is it related to air pollution, etc...?

For any anti-pollution program to work, whether comprehensive utilization or something else, this kind of knowledge would be necessary in first providing a sense of the spatiality and place-ness of the problem.

Like BFI researchers, Liu also outflanked the predominantly industrial-centered approach to “three wastes” problems by appealing to the holistic nature of environmental problems.

Because various factors in nature are interlinked, interrelated and restricted. Therefore, it is necessary to have a holistic view, grasp the situation comprehensively, and conduct a comprehensive analysis in order to understand the scope and degree of pollution hazards. Only when all departments and disciplines take action, come up with ideas and find ways to control the environmental pollution of their own departments, and at the same time support each other and work together can environmental protection be truly realized.

This, he suggested, illuminated the need for an even broader mass mobilization of society, such that “the masses working in all departments of industry, agriculture, health, and scientific

research” can be mobilized. Once again, China’s superior socialist system was apparent: it was more capable of unifying the necessary scientific disciplines than capitalism. “Capitalist countries cannot do this [broad mobilization] at all,” he wrote, “Capitalists are always seeking profit and always doing beggar-thy-neighbor. That’s why their scientists groan pessimistically and desperately in the face of pollution problems.”<sup>241</sup>

#### **IV. Conclusion: Tensions and Binaries**

The establishment of the scientific and political fact of public hazards opened up space for different academic communities in China to self-associate their disciplines with the newly-identified category of environmental problems. For example, BFI scientists used both terms “environmental protection” and “public hazard”—whereas comprehensive utilization of the “three wastes” reports at this pre-NCEP period only used the latter. By fixing “public hazards” as problems, the translation of “environmental protection” and related concepts like “biosphere” and “ecology”, now in vogue in global forestry circles, allowed intellectual pathways for Chinese scientists to associate their discipline with industrial approaches to environmental problems like the “three wastes” mass campaigns.

The notion that environmental science itself was a new discipline blended of preexisting ones was also an important translated idea, and laid important foundations for the future subject of the environmentalist and environmental scientist in China. On this point, we can see that the process of linking scientific disciplines to the industrial front’s “three wastes” campaigns also birthed a binary between them: the latter emphasized the role of the proletarian masses and

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<sup>241</sup> Dongsheng 刘东生 Liu, “Huanjing Wuran Yu Huanjing Baohu 环境污染与环境保护 [Environmental Pollution and Environmental Protection],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (1973): 21–27.



privileged their knowledge, and the other that emerged from scientific institutes that emphasized the relevance of their technical expertise and professional knowledge.

Yet another tension underlined in these documents is whether pollution was inevitable or could be wholly eliminated. By 1972, the Party had already determined that the latter was correct. Thinking pollution was inevitable or unavoidable was counter-revolutionary and revisionist thinking, as it was (rightly) determined to be a critical assumption behind the depoliticized, technocratic approaches to environmental protection ideas emanating from capitalist countries. This tension was apparent at the PRC delegation's disagreements at the UNCHE, but also appears to have continued to structure the longer-term engagement with the ideas of the global environmental regime. The Maoist interpretation of the ability for correctly-ordered human societies to industrialize without producing pollution—a key idea behind comprehensive utilization as a solution—was implicitly challenged by scientists like Liu Dongsheng who saw environmental problems as diffuse, transnational, and even global. This is why Liu soberly concluded that “only the complete elimination of the capitalist system can realize the control of global pollution.” During the Mao-Hua-Deng transition, this tension would reappear again. The political toxicity of extreme Maoism meant that this interpretation would be reversed and falsely characterized by environmentalists wanting to survive the Deng regime like Qu Geping in the accusation that extreme leftists in Mao's China believed pollution could not exist socialist countries.

A *tu/yang* binary can be seen in how Chinese scientists like Liu Dongsheng embedded in global flows of scientific knowledge interpreted the diffuse spatial nature of environmental problems (*yang*) versus the more industrial-focused, bootstrap, worker-based approach (*tu*)

embodied in the mass campaigns to comprehensively utilize the industrial “three wastes”. In the political climate of early 1970s China, the former had to reconcile ideologically-suspect foreign scientific knowledge about environmental problems with the broader Maoist, revolutionary project. BFI researchers did this by appealing to frameworks like “making foreign things serve China” (洋为中用). That same framework was implicit in geochemist Liu Dongsheng’s essay, but Liu also tried to navigate *tu/yang* tension by (1) countenancing the centrality of revolutionary practices like comprehensive utilization; (2) using the environmentalist self-critiques of capitalist countries as evidence of the superiority of socialism, which simultaneously gave credence to the environmentalist scientific concepts behind the critique; (3) explicitly connecting his scientific discipline’s potential to contribute to the broader mass campaign to eliminate the “three wastes”; and (4) by emphasizing the “comprehensive nature” of environmental problems such that even wider mass mobilization was needed.<sup>242</sup>

In short, the formative period of environmental consciousness and sciences was characterized by nuanced intellectual and ideological negotiations. Prior to the NCEP, workers and intellectuals had begun developing their own approaches to environmental problems that were now known and accepted as political and scientific fact. From the perspective of the Party-state, the next step was to synthesize these different approaches and the epistemologies behind them.

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<sup>242</sup> Liu, “Huanjing Wuran Yu Huanjing Baohu 环境污染与环境保护 [Environmental Pollution and Environmental Protection].”

## Chapter 6 - The Worker, the Peasant, the Expert, and the Cadre: Integrating Maoist Standpoint Epistemologies at China's First National Conference on Environmental Protection

### I. Introduction

This chapter provides a history of China's first National Conference of Environmental Protection (*shouci zhongguo huanjing baohu huiyi* 首次中国环境保护会议 or henceforth, NCEP) held in August of 1973. The history is divided into three parts. In Part 1, I draw on the conference's official planning documents to show how investigations into "three wastes" incidents before the NCEP created a national landscape of pollution in the view of the Party center. I show here that acknowledging China's polluted *national* landscape was an important precursor to the NCEP, rendering China's environment as an object that could be governed and managed.

In Part 2, the narrative moves into the activities of the conference itself. In particular, I draw on speeches and reports presented at the conference by four types of representatives: political cadres, peasants, factory workers, and experts. The National Planning Commission organizers invited these four types of people to the NCEP because they were understood to represent four different Maoist standpoint epistemologies vis a vis environmental issues. In Maoist analyses of knowledge production, these social categories represented distinct class positions that were expected to bring unique perspectives on a topic based on their particular experiences, revolutionary consciousness, and knowledge. This same understanding structured the "three-in-one" (*sanjiehe* 三结合) scientific experiment groups that had been used, for example, in agricultural science projects and in comprehensive utilization of the industrial "three

wastes” projects. Previous scientific conferences during the Mao period reflected this same epistemological structure.<sup>243</sup> At the NCEP, these groups of people were brought together in the hopes that by sharing their experiences and thoughts confronting environmental problems with one another, the Party could develop a truly revolutionary, holistic environmentalism that could solve the environmental problems plaguing the industrial world that capitalist countries simply could not solve. Most simply, peasants and factory workers brought their deep first-hand knowledge of production processes, labor, and working with pollutive substances themselves; experts and scientists brought technical knowledge and awareness of foreign innovations; and cadres brought the correct revolutionary consciousness and ability to discipline and coordinate the others. The nexus of these epistemological standpoints produced *huanbao*.

In Part 3, I briefly analyze the role of print media in spreading *huanbao* immediately following the NCEP. I look at the popular science magazine *Environmental Protection*, which began publication in 1973 and was rebooted following the NCEP in 1974. The magazine published an array of different articles solicited from readers meant to disseminate what *huanbao* was, but also to continue fleshing out its meaning and associated activities. I look at one genre of *huanbao* literature, a sort of epistemological autobiography, wherein scientists explained in detail how they came to realize how the realms of human health and economic production were intertwined with and through “the environment.” These stories were more than just retellings of a cognitive or intellectual process to be modelled elsewhere, but were also affective and emotional. The affective nature of these stories communicated *huanbao* as a particularly revolutionary and liberatory set of ideas and practices. From this, I demonstrate that print media played an

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<sup>243</sup> Sigrid Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China* (University of Chicago Press, 2016), 42.

important role in creating and disseminating knowledge about the scientific, social, political, and revolutionary dimensions of *huanbao*.

Despite its name, the NCEP has for a long time now had a curious relationship to accounts of China's environmental history. In most cases, the conference is not mentioned at all. Judith Shapiro, for example, skips it entirely in *Mao's War against Nature*, mentioning just the 1972 UNCHE in passing before then moving on to the activities of the "Environmental Protection Leading Group" in 1974.<sup>244</sup> In his account of "the environment and its protection in the years of Mao Zedong", Richard Sanders gives it a couple sentences, writing that its significance was as a "springboard" for the later development of China's "domestic environmental policy."<sup>245</sup> Political scientists Jerry McBeath and Bo Wang wrote that the "primary achievement" of the NCEP was the admission that "environmental problems existed in China" and that "environmental considerations should be incorporated into planning for economic development." The important changes that they see following the NCEP were regulations and pollution standards.<sup>246</sup> Chinese environmental historian Maohong Bao likewise highlights it for recognizing that China had environmental problems and because it produced the "first document of environmental protection in P.R. China."<sup>247</sup>

It is difficult to integrate the NCEP into a history of Chinese environmentalism that is defined purely by bureaucratic, legislative, and administrative measures. A consequence is a

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<sup>244</sup> Judith Shapiro, *Mao's War Against Nature: Politics and the Environment in Revolutionary China (Studies in Environment and History)* (Cambridge University Press, 2001), 192.

<sup>245</sup> Richard Sanders, "The Political Economy of Chinese Environmental Protection: Lessons of the Mao and Deng Years," *Third World Quarterly*, December 1, 1999, 1204.

<sup>246</sup> Bo Wang and Jerry McBeath, "China's Environmental Diplomacy," *American Journal of Chinese Studies* 15, no. 1 (2008): 3.

<sup>247</sup> Maohong Bao, "The Evolution of Environmental Policy and its Impact in the People's Republic of China," *Conservation and Society*, 4, no.1 (2006), 39.

diminished understanding of what a national environmental program can look like: as if the only way to properly manage the industrial human-nature relationship is to legislate it or make an agency of it. The Party-state did create a few dedicated environmental institutions following the NCEP, based on the observation that other nations all around the world were doing the same. But the real animating logic of Maoist environmentalism was not to manage it bureaucratically or through the rigorous enforcement of laws. That risked elitism and detachment from the masses. Rather, the point was to turn Chinese citizens into self-conscious environmental subjects, transforming them into active stakeholders in China's environmental condition. This would precipitate genuine revolutionary action against pollution and build a transformative relationship with the environment—grounded not just in abstract policy or distant administration but in the lived experiences of workers, peasants, and other citizens.

The pressure of this idea is not just historiographical. The tension between bureaucratic and non-bureaucratic approaches to environmental problems marked the development of Chinese responses to environmental problems in the 1970s, a unique feature of Chinese environmentalism. Observational accounts of how capitalist countries were dealing with environmental problems at the time often noted their creation of dedicated environmental agencies. In a January 1973 NCEP planning document sent to the State Council in January 1973, the National Planning Commission suggested that the PRC copy foreign approaches to environmental problems by creating a dedicated environmental protection agency:

At present, many countries in the world have set up national environmental protection agencies one after another, and all regions and departments of our country also have urgent requirements. Since environmental protection involves comprehensive work in

industry, urban construction, agriculture, aquatic products, sanitation, oceanography, meteorology, and scientific research, it is difficult to have one department take care of it concurrently. It is suggested that the State Council set up an environmental protection bureau.<sup>248</sup>

But these sorts of dedicated environmental organizations were only a part of the puzzle, as pointed out by the famous physicist Qian Weichang (钱伟长) in his 1974 essay:

Capitalist societies cannot rely on the laboring masses to protect the environment and control pollution because they must prioritize the profit demands of the bourgeoisie. Therefore, although they have established all kinds of departments and organizations for environmental work, the results have been limited.<sup>249</sup>

Borrowing the lens from bureaucratic/regulatory narratives to view Chinese responses to environmental problems in the early 1970s will render a diminished sense of the significance of the NCEP. Certainly, planners and cadres discussed implementing various environmental regulations and standards before, during, and after the NCEP. The notion of a dedicated environmental institution also emerged from the NCEP. But the overall environmentalist program borne from the NCEP as it was imagined by its creators was not primarily legal,

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<sup>248</sup> National Planning Commission 国家计划革命委员会, “Guanyu Quanguo Huanjing Baohu Huiyi Neirong, Kaifa He Qingshi de Ji Ge Wenti” 关于全国环境保护会议内容、开法和请示的几个问题 [Several Questions about the Content, Methods, and Request for Instructions of the National Environmental Protection Conference],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 222–23.

<sup>249</sup> Qian Weichang 钱伟长, “Zibenzhuyi Guojia de Huanjingwuran 资本主义国家的环境污染 [Pollution in Capitalist Countries],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (1974): 30–35.

regulatory, or bureaucratic. Constructed in the context of the late Cultural Revolution, it was more importantly envisioned as a mass-based revolutionary movement that saw environmental solutions in direct action and mass mobilization—not legal and institutional reforms.

After all, this was characteristic of Maoist attitudes toward socialist legality since the Anti-Rightist Campaign that followed the Hundred Flowers Movement in 1957-1958. As political scientist Richard Baum put it, Mao viewed a “highly-codified, bureaucratic” legal system modelled after the Soviet Union’s antipathetically, as “sacrific[ing] spontaneity for specificity, and mobilization for routinization.” During the Cultural Revolution, antipathy to “bureaucratic rule by law” only hardened under the influence of Cultural Revolution “radicals” and Mao’s personality cult—what Baum called a “clear—and virulent—swing away from post-Stalinist legality.”<sup>250</sup>

My goal in this chapter is to restore to historical significance the revolutionary heart of the PRC’s first efforts to reshape the human-nature relationship. In line with the ideological foundations of the Cultural Revolution, the NCEP championed the inclusion of various social-epistemic categories in the construction environmental discourse, leveraging their unique standpoints and experiences to address pollution and other environmental challenges. Its proponents framed *huanbao* as a revolutionary new paradigm to mobilize the masses, integrate their perspectives, and utilize their collective wisdom in the service of environmental protection, or *huanbao*. The NCEP embodied an aspiration to redefine environmental issues not as distant and abstract matters to be dealt with by state agencies, but as urgent and tangible concerns that everyone should actively participate in addressing. It sought—in theory—to democratize

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<sup>250</sup> Richard P. Baum, “Modernization and Legal Reform in Post-Mao China: The Rebirth of Socialist Legality,” *Studies in Comparative Communism* 19, no. 2 (June 1, 1986): 79; 83.



environmental governance, making it the collective responsibility of all social strata, rather than the exclusive domain of bureaucrats, experts, or policymakers. *Huanbao* was at its core imagined by those who created it as a revolutionary project, an essential prerequisite to fulfilling the Maoist vision of a socialist society. In short, the NCEP meant that Mao's revolution would not be complete without protecting the environment.

## **Part 1**

### **II. Preparing for the NCEP and Constructing a National Problem**

#### *The "Three Wastes" and the Nation's Three Forms of Matter*

When Zhou Enlai read the summary report filed by the PRC delegation to the UNCHE in June 1972, he concluded that environmental issues must be elevated more widely on the national agenda. He established a preparatory group to organize the NCEP to be held in Beijing in August 1973. The preparatory group that he established to organize the NCEP drew again on the ministries whose work were determined to impinge on environmental issues, like the National Construction Committee (国家建委), the Ministry of Chemical Industry, the Ministry of Health, the Chinese Academy of Sciences, the Ministry of Light Industry, the Ministry of Agriculture and Forestry, the Ministry of Communication, the Ministry of Metallurgy, the First Ministry of Machine Building (第一机械工业部), and the National Planning Commission. The planning office was housed in the latter. Important UNCHE figures like Tang Ke and Gu Ming (of the

National Planning Commission) also had leadership roles, with the latter serving as one of the leaders of the working group.<sup>251</sup>

The January 1973 National Planning Commission report to Li Xiannian, Hua Guofeng, and other leaders on the State Council explained that the conference was being organized as a continuation of Premier Zhou Enlai's campaign to eliminate the "three wastes" and practice comprehensive utilization, demonstrating that the organizers self-consciously saw *huanbao* as growing out of these efforts. Planned to be held at Beijing's Xiyuan Hotel, the size of the conference was to be around 300 people (it would be 312), many high-level leaders would participate, including provincial and municipal leaders at the deputy director of the Revolutionary Committee (革委会副主任) or first-level leading comrades of the Standing Committee—that is, the top ranks of the provincial-level organizations of the CCP.

The conference proceedings were divided into three stages: the first on criticizing Lin Biao, self-criticism, and exchanging experiences in dealing with environmental problems; the second on specific guidelines, methods, and policies; and the third on discussing future work. Leading comrades and others from ministries related to environmental problems were invited to give speeches. The preparatory group also planned internal educational exhibitions for attendees to learn from. Throughout, the conference secretariat would send briefing reports for the "leading

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<sup>251</sup> Qu Geping 曲格平 and Peng Jinxin 近新彭, eds., "Zhongguo Huanjing Baohu Dashi Gaiyao 中国环境保护大事摘要 [Summary of Major Events in Chinese Environmental Protection]," in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]* (Zhongguo huanjing kexue chubanshe, 2010), 492-493.

comrades of the central government and for leading comrades of relevant ministries and commissions.”<sup>252</sup>

Hua Guofeng played an involved role with the planning of the conference and its proceedings. In 1971, Hua began serving on Zhou Enlai’s State Council office, the year when Zhou himself grew increasingly concerned about environmental problems and launched a mass campaign against the industrial “three wastes”. At the end of July 1973, Hua sent a report to Zhou Enlai detailing the preparations done for the NCEP since the January report by the preparatory group.<sup>253</sup>

Hua’s report to Zhou provided a national summary of what he called the “relatively serious pollution situation” in China.<sup>254</sup> As such, it offers a useful snapshot of China’s national polluted landscape as central leaders would have viewed it at this moment in time. More than that though, the report reveals an important, but subtle, shift in thinking about the material nature of environmental problems in China. The concept of the industrial “three wastes”—wastewater, waste gas, and waste solids—correlates with the different forms that matter can take: solid, liquid, and gas. Thinking of pollutants as taking one of these three physical forms allowed people to identify the specific substance or chemical that was pollutive and fix it in relation to a specific

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<sup>252</sup> National Planning Commission 国家计划革命委员会, “Guanyu Quanguo Huanjing Baohu Huiyi Neirong, Kaifa He Qingshi de Ji Ge Wenti” 关于全国环境保护会议内容、开法和请示的几个问题 [Several Questions about the Content, Methods, and Request for Instructions of the National Environmental Protection Conference].”

<sup>253</sup> At the first plenary session of the 10th Central Committee in late August 1973, Hua was elevated to the Politburo and Zhou asked him to take control of agricultural development.

<sup>254</sup> National Planning Commission 国家计划革命委员会, “Guojia Jihua Weiyuanhui Guanyu Quanguo Huanjing Baohu Huiyi Zhunbei Qingkuang de Baogao 国家计划委员会关于全国环境保护会议准备情况的报告 [Report from the National Planning Commission on the Preparation for the National Environmental Protection Conference],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 224–28.

industrial process—as something that was physically produced within a particular industrial space. As such, industrial pollution was viewed primarily as a problem of the industrial front, as something that could be prevented and stopped within the domain of the factory itself. This is why the turn toward identifying industrial by-products as “wastes” first naturally invoked comprehensive utilization, a practice that was originally for recycling industrial by-products to increase production. Likewise, it was this view of environmental problems that researchers at the Beijing Forestry Institute in early 1973 were trying to complicate when they wrote that factory-based anti-pollution “measures are of course important and necessary, but they alone cannot completely solve the problem.”<sup>255</sup>

Thinking of industrial pollution as taking one of the three forms of matter directly shaped how knowledge about China’s national pollution landscape was produced and organized. Because each of the “three wastes” corresponded to one of three states of matter, it was through those states of matter as they existed outside the factory that the “three wastes” flowed and presented themselves as problems. The result was that waste gas implicated China’s air and atmosphere; wastewater and waste liquid easily flowed into China’s rivers, groundwater, lakes, coasts, ponds, streams, and so implicated China’s bodies of water; and waste solids were set in the earth and so hurt arable land or otherwise seeped into the soil. The process of building a national picture of China’s polluted landscapes (for political consumption at the NCEP) was thus in most part a process of tracing the “three wastes” through the form of matter that each naturally corresponded with on its larger spatial level. The “three wastes” were no longer merely the different matter forms that industrial effluence (wastewater, waste gas, waste solids) could take

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<sup>255</sup> Beijing linxue yuan 北京林学院 [Beijing Forestry Institute], “Linmu Yu Huanjingbaohu 林木与环境保护 [Forests and Environmental Protection],” *Hebei Linye Keji 河北林业科技 [the Journal of Hebei Forestry Science and Technology]*, no. 3 (June 1973): 1–19.

at the factory. They became a way of conceiving of *China's* forms of matter (its water, its air, its earth) as the material mediums through which pollution traveled and ended up affecting people's health or damaging agricultural production.

Hua's report also clearly evidenced how tracing the "three wastes" through their corresponding form of matter in China's environment highlighted corresponding features of China's landscape. It was organized under the headings of "About water pollution," "about urban air pollution," and "about the hazardous dangers of waste reside." For example, (among others) the Yangtze, the Yellow, the Songhua, the Pearl, and the Taizi rivers—the latter of which was referred to as "basically now a sewage river"—were said to be polluted because of wastewater from factories and pesticides.

The Songhua River has been treated for many years, but more and more wastewater is discharged from cities such as Qianjilin, Qiqihar, Harbin, Mudanjiang, and Jiamusi, and the water quality fluctuates. In February this year, a large number of dead fish were found in the 300-kilometer section of the river below Qiqihar. The fish and shrimp in the river section below Jilin have disappeared, and the sludge discharged from the city generally contains the excrement discharged from the city. The hair of local fishermen who have eaten the fish for a long time contains the largest amount of mercury 50.2 mg per kilogram (more than ten times the normal person), close to the lower limit for Minamata disease in Japan, which is 50.8 milligrams per kilogram.

The water quality of the Xiangjiang River is also deteriorating. The Zhuzhou Chemical Plant alone discharges about one ton of arsenic into the Xiangjiang River every day. The

fish production in Fuchun River and Xin'an River Reservoirs has been greatly lost.

According to preliminary estimates, 70% of the fish in Fuchun River have died.

Hua's report drew a broad national picture of the severity of water pollution problems, emphasizing that even bodies of water in remote borderland regions were polluted. Pollution was not merely an urban phenomenon, or one that affected just China's most industrialized areas.

Water pollution has also occurred in some remote areas. Dianchi Lake, 500 miles away in Yunnan Province, was originally famous for its crystal-clear bottom. After 16 surrounding factories discharged wastewater, dead fish and white foam can be seen on the lake, and the sea vegetables in the grass sea in the north of Dianchi Lake have also disappeared. The drinking water of Kunming and along the coast is also at risk. Inland rivers such as in Yili, Kashgar, and Hewen in Xinjiang began to be polluted. Shuimogou in Urumqi used to have a beautiful stream, but now it has become a smelly ditch, with phenol content exceeding 24 times the standard.

Likewise, air pollution was widespread due to factories and industrial plants producing toxic gases. In Jilin, smog was so bad that car lights needed to be turned on during the day. The people of Jilin were "very worried about the occurrence of 'public hazard' incidents." Respiratory diseases in certain industrial districts of Beijing were three times higher than in clean air areas.

The Qingbaijiang Industrial Zone in Chengdu emits more than 5 million cubic meters of harmful gas every day, and the hydrogen, carbon disulfide, and sulfur dioxide in the atmosphere exceed the standard by dozens to more than 100 times, seriously affecting the health of residents and nearby agricultural production. In the chemical industry, due to

exposure to toxic gases, hepatomegaly, leukopenia, nervous system and respiratory system diseases are quite common, and the incidence rate in some chemical plants is as high as 20% to 30%.

Waste residue, the last of the three wastes, was also a serious problem as it occupied land.

The amount of slag stored in Anshan Iron and Steel has reached more than 100 million tons, forming a 50-meter-high slag mountain that stretches for several kilometers. Now we use 100 wagons, 20 locomotives, 140 slag tanks, and tens of thousands of workers every day to transport the waste to Yingkou for reclamation.

Hua's report also discussed how pesticide residue flowed through these same material media of earth and water, accumulating in various exported consumables.

Pesticides such as HCH [Lindane or 六六六 in Chinese] and DDT are widely used in agriculture, and excessive residues have been found in grains, vegetables, fruits, eggs, tobacco leaves, and aquatic products in some areas, affecting export tasks. According to China National Cereals, Oils and Foodstuffs Import and Export Corporation, the West German Bell Company inspected the dried egg yolk powder exported from China, and only five of the fifty samples met the regulations of the Western European Common Market. Last year, Zhejiang province tested 20 billion catties of grain in the province, and

10 billion catties were found to be contaminated, of which 400 million catties were inedible.<sup>256</sup>

During the conference itself, the Ministry of Health shared a document underlining the importance in understanding what they called “the law of the movement of ‘three wastes’ pollutants in the environment”:

It is necessary to earnestly study the scientific methods of analysis and determination of pollution sources, and further understand the law of the movement of “three wastes” pollutants in the environment [进一步摸清“三废”污染物在环境中运动的规律] and study the self-cleaning capability of the environment [研究环境的合准能力].<sup>257</sup>

Recall, moreover, that in January 1973 Liu Dongsheng founded his appeal for making his field of geochemistry a central tool for resolving environmental problems on the basis that geochemists were naturally placed to trace the flow of “three wastes” pollutants from the factory through the environment. “In order to find out the pollution of groundwater and air in Beijing,” he wrote, “we must first find out how much sewage is discharged from factories, what poisons are in the sewage, how much smoke is discharged from the chimney, and what toxic gases are there besides dust.”<sup>258</sup> China’s “environment” came to be the composite picture of the “three

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<sup>256</sup> National Planning Commission 国家计划革命委员会, “Guojia Jihua Weiyuanhui Guanyu Quanguo Huanjing Baohu Huiyi Zhunbei Qingkuang de Baogao 国家计划委员会关于全国环境保护会议准备情况的报告 [Report from the National Planning Commission on the Preparation for the National Environmental Protection Conference].”

<sup>257</sup> Unknown, “Guanyu kaizhan huanjing baohu gongzuo de jidian yijian (caogao) 关于开展环境保护工作的几点意见 (草稿) Several Opinions on Carrying out Environmental Protection Work (Draft)” (unpublished conference notes, 1973), typescript.

<sup>258</sup> Liu Dongsheng 刘东生, “Huanjing Wuran Yu Huanjing Baohu 环境污染与环境保护 [Environmental Pollution and Environmental Protection],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (1973): 21–27.



wastes” and the corresponding form of matter they could be scientifically proven to have flowed through. Put differently, solving environmental problems became about more than just controlling industrial “three wastes” by-products at the factory, but also about controlling and managing China’s composite national landscape of water, earth, and air as the “three wastes” flowed through them. That task, naturally, invoked a much wider array of knowledge disciplines and institutions than comprehensive utilization.

Hua’s pre-NCEP report also revealed the mechanics through which environmental problems were discovered and so came to be politically and socially recognized as actionable problems. Chemical testing of landscape features was the main scientific tool through which landscape features became known as polluted. In the view of physicist Qian Weichang, “The monitoring of environmental pollution is the technical basis of all environmental protection work.”<sup>259</sup>

The experiential knowledge and observations of the masses played a role here. Absent a regularized, nationwide testing regime, signs of pollution were often one of two things: anomalous public health incidents and sudden differences in production statistics in industries that were closely associated with the environment (farming, fishing). For example, the pollution of the Donghe river district (in Baotou, Inner Mongolia) became known in May 1971 when researchers tested 225 people suffering anomalous health problems, discovering 40% suffered from digestive tract symptoms and 33% suffered from oropharyngeal diseases. Some local production teams there reported that thousands of people had been drinking polluted water. Likewise, the Guanting Reservoir incident was only discovered due to an outbreak of health

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<sup>259</sup> Qian, “Zibenzhuyi Guojia de Huanjingwuran 资本主义国家的环境污染 [Pollution in Capitalist Countries].”

problems in a part of Beijing. The chemical drift that led to those health problems was only retroactively traced: from the sick human bodies, to the fish they consumed, to the market they were bought from, to the reservoir that they were caught from, and then finally to the upstream factories.

Pollution also became known through a close attention to reduced production from economic spheres closely linked to the environment like farming, fishing, and animal husbandry.

There are 21 large and medium-sized cities along the Yangtze River, which discharge wastewater directly into the river. After inspection, the Yangtze River below Chongqing, Yichang, Wuhan, Jiujiang, Nanjing, and Shanghai all contained excessive amounts of toxic substances in the water. The obvious pollution zone in the Nanjing section of the river is 12 kilometers long. The output of clams in Nanjing was 530 tons in 1958, but dropped to 83 tons in 1972. According to the local fishery team, the catch in 1970 was half that of 1969. The Hangjiahu area was originally a land of abundance where “fish are always in the river,” but now the people report that “the black water is often there and the fish are missing.”

...an electroplating factory in Guizhou discharged wastewater containing chemical compounds through a karst cave, causing cattle in the downstream area to die after drinking the water.

The fish production in the Fuchun and Xin'an river reservoirs has greatly decreased.

According to preliminary estimates, 70% of the fish in the Fuchun River have died.<sup>260</sup>

Certainly, widespread chemical testing of soil, water, and air around the country revealed pollution whose effects were not yet felt or evidenced in the spheres of health or production. But in such cases, it was still the potential threat they posed to health and production that made pollution matter.

Particular substances were constructed as “pollutants” because they negatively influenced either production or public health. These indicators of pollution in turn sparked investigative processes wherein incidents were traced backward in time and space according to a certain kind of pattern: from cattle or fish or human through some kind of medium that corresponded to one of the “three wastes” and then to an industrial source. The epistemology of pollution—the ways in which substances and landscape features were problematized—was in this way shaped by the preexisting Maoist preoccupations with production and human health and conceptualization of how matter flowed through the broader environment. Consequently, the environment, production, and public health were being tied together closer and closer into one single, interconnected web whose strands were the “three wastes” and their movement through the national landscape and biopolity.

The 1972 UNCHE marked the transformation of the concept of the environment as a global problem which was “locally ubiquitous” into a concept of a hazardous, interconnected

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<sup>260</sup> National Planning Commission 国家计划革命委员会, “Guojia Jihua Weiyuanhui Guanyu Quanguo Huanjing Baohu Huiyi Zhunbei Qingkuang de Baogao 国家计划委员会关于全国环境保护会议准备情况的报告 [Report from the National Planning Commission on the Preparation for the National Environmental Protection Conference].”

planet wherein activity in one part of the world could have far-reaching, unforeseen, and cascading consequences in distant places. In much the same way, the NCEP marked the acknowledgement of a Chinese national environment. In short, it became a new “domain around which one could organize a conference.”<sup>261</sup>

## Part 2

### III. *Huanbao* and Integrating Maoist Standpoint Epistemologies at the NCEP, August 5-20, 1973

The Party’s anxieties about the relationships between knowledge production, intellectuals, and the building of a revolutionary society during the late 1950s led to the establishment of certain dichotomies that reflected Maoist assumptions about the different class character of knowledge. Practice versus theory, red versus expert, modern vs indigenous, and peasant/native (*tu*) versus elite/foreign (*yang*) knowledge were some of the important contradictions that governed how knowledge was perceived and valued. These same dichotomies structured the construction of an environmentalist ethic in the early 1970s. Workers and technicians emboldened by their correct proletarian consciousness (red/*tu*/indigenous) drew on Maoist theory to portray expert-based and foreign approaches to environmental problems as futile because they were unable to get at the real political heart of environmental problems. Chinese scientists (expert/foreign/*yang*) responded by drawing on global scientific advancements and the authority of science to demonstrate that environmental problems implicated far more than just the industrial front and comprehensive utilization. Importantly, both of these groups

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<sup>261</sup> Paul Warde, Libby Robin, and Sverker Sörlin, *The Environment: A History of the Idea* (Johns Hopkins University Press, 2018), 202.

sought to unify their different *tu* and *yang* approaches. The question was one of unity and of striking the right balance.

One typical approach to resolving these contradictions involved “weakening the difference between elite and popular forms of knowledge—for example by requiring intellectuals to engage in manual labour and learn from peasants and workers, while simultaneously encouraging peasants and workers to engage in the arts and sciences.” Other approaches did not seek to create individuals that “transcended divisions between technical and political knowledge,” but rather was aimed at organizing “people who represented different perspectives and types of experience to work together in the production of revolutionary scientific knowledge.”

This latter approach was exemplified in practices like the “three-in-one” (三结合) scientific experiment groups that brought together people with different perspectives and types of experiences to produce revolutionary scientific knowledge.<sup>262</sup> The “three-in-one” system was a “highly articulated, structured ‘standpoint epistemology’” that sought to account for the fact that people’s social position influences their role and contribution to the production of knowledge.<sup>263</sup> Because they worked with the substances and were exposed to them every day, workers had special knowledge of industrial pollutants, which they expressed idiomatically through classifying them as “red, yellow, white, and black” varieties. Scientists and technicians knew those pollutants by their chemical name, could trace them outside the factory, and could help

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<sup>262</sup> Sigrid Schmalzer, “Red and Expert,” in *Afterlives of Chinese Communism: Political Concepts from Mao to Xi*, ed. Christian Sorace, Ivan Franceschini, and Nicholas Loubere (ANU Press, 2019), 218.

<sup>263</sup> Sigrid Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China* (University of Chicago Press, 2016), 42.

innovate technological solutions. Cadres were expected to have the correct political consciousness, mobilize the masses, and coordinate the other groups. The essential goal of the “three-in-one” system at the factory level was to unite the technical knowledge of scientific experts, the correct revolutionary politics of Party cadres, and the experiential knowledge of peasants and factory workers in order to develop innovative and revolutionary comprehensive utilization of the industrial “three wastes” practices.

The NCEP signifies the implementation of the “three-in-one” model on a national scale under the recognition that environmental problems constituted material relationships that were much more complicated, geographically broad, and spatially diffuse than could be managed simply through comprehensive utilization at the industrial front. This recognition itself was borne from tracing the “three wastes” through the national landscape, from repeated critique of and comparison with capitalist environmental problems, and from the translations of ideas like “ecology” and “biosphere” by Chinese scientists embedded in global scientific disciplines.

Indeed, one way of thinking about the NCEP is as a national-level “three-in-one” combination meeting itself. For example, according to the NCEP’s secretariat, the 312 people that attended the NCEP at the Beijing Xiyuan Hotel from August 5 to August 20 were all drawn from one of four groups representing the worker/peasant, cadre, and scientist/technician/expert standpoints that constituted a typical “three-in-one” combination team:

- (1) Cadres responsible for environmental work at the provincial, municipal, and autonomous region committee level and cadres from relevant departments of the State Council.

(2) Worker representatives from factories and mines that had achieved advancements in comprehensive utilization and “three wastes” elimination.

(3) Peasants from communes who had overcome some kind of rural environmental problem.

(4) Representatives from scientific research departments, colleges, and universities.<sup>264</sup>

By placing these groups together under the auspices of a national convention on “*huanjing baohu*” and asking them to share their knowledge and experiences, the NCEP was meant to produce “a politically conscious and socially revolutionary scientific practice” that could manage the complexity and broad scope of environmental problems.<sup>265</sup> In his NCEP speech, lead organizer Gu Ming summed up the integrative intellectual process he envisioned at the NCEP nicely when he said:

Comrades, you come from the front line of production struggles and scientific experiments, and you have rich experience...Relying on the actions of the broad working class, poor and lower-middle peasants, revolutionary cadres, and revolutionary intellectuals, we will definitely reach new achievements.<sup>266</sup>

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<sup>264</sup> Conference Secretariat 会议秘书处, “Yi Pili Zhengfeng Wei Gang, Zuo Hao Huanjing Baohu Gongzuo 以批林整风为纲, 做好环境保护工作 [Taking Criticize Lin Biao and Rectification as the Main Theme, Do a Good Job in Environmental Protection Work],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 273–74.

<sup>265</sup> Schmalzer, “Red and Expert,” 219.

<sup>266</sup> Gu Ming 顾明, “Yi Lvxiian Wei Gang Gaohao Huanjing Baohu Wei Guangda Renmin He Zisun Houdai Zaofu -- Gu Ming Tongzhi Zai Quanguo Huanjing Baohu Huiyi Shang de Fa Yan 以路线为纲搞好环境保护 为全国人民和子孙后代造福 -- 顾明同志在全国环境保护会议上的发言 [Taking the Line as the Guiding Principle, We Must Do a Good Job in Environmental Protection for the Benefit of the Vast People and Future Generations – Speech by Gu

As an intellectual project, *huanbao* was thus deeply shaped by a commitment to integrating to Maoist standpoint epistemologies.

#### IV. The Factory Worker

Factory representatives were invited from a diverse array of places and industries. The Northeast Pharmaceutical Factory—where the technician and theorist Hua Qingyuan who developed the correct political line on “three wastes” issues worked—was invited to send representatives to share their experience in using comprehensive utilization to improve the environment. The Shanghai Laoyuan Chemical Factory, which had produced the oft-republished January 1972 report about how they mobilized workers to eliminate the industrial “three wastes” was also invited. Workers from the Maanshan Iron and Steel Company (马鞍山钢铁公司) in Anhui, the Hunan Xiangxiang Sodium Chloride Factory (湖南湘乡氯化盐厂), the Yunnan Gejiu City Jijie Smelter (云南个旧市鸡街冶炼厂), the Jiangxi Ganzhou Smelter (江西赣州钼冶炼厂), the Liaoning Fushun Petroleum Plant #3 (辽宁抚顺石油三厂), and the Chengdu Phosphate Fertilizer Plant (成都磷肥厂)—to name just a few—were invited to share their practical

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Ming at the National Conference on Environmental Protection],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 彭新彭 (Zhongguo huanjing kexue chubanshe, 2010), 248–57.



experiences fighting the “three wastes” and practicing comprehensive utilization in their factories.<sup>267</sup>

A predominant theme in the speeches and reports from factory representatives was a certain uniform triumphalism. Their point was less to give practical advice as to *whether* practices like comprehensive utilization worked, or *whether* “self-reliant” methods were effective, or *whether* it was correct to take seriously the threat of the “three wastes”. Rather it was to provide practical accounts of *how* and *why* these attitudes and practices worked, as proof that the Maoist approach to environmental problems was effective and socially revolutionary. Zhou’s 1971 campaign had already highlighted comprehensive utilization as a politically correct factory-level environmentalist practice. The already-determined correctness of comprehensive utilization and general triumphalist tone can be seen in how Gao Fengxiang (高凤翔) from the Jilin Paper Mill opened his speech:

Since the Great Proletarian Cultural Revolution, our factory has followed the great teaching of Chairman Mao that “comprehensive utilization is essential, and attention should be paid to it.” We have vigorously carried out the struggle between the two lines, deeply launched the revolution, fully mobilized the masses, strengthened enterprise management, and greatly promoted the treatment and comprehensive utilization of “three wastes,” achieving great results...Comprehensive utilization of “three wastes” not only recovers valuable wealth for the country but also greatly reduces the pollution to rivers and the atmosphere, protecting the environment. The vigorous promotion of comprehensive utilization has also effectively

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<sup>267</sup> Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference], *Mulu* 目录 [Table of Contents], *Huanjing Baohu Jingyan Xuanbian* 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences] (Beijing: Renmin chubanshe, 1973).

promoted the development of our papermaking production. Last year, all seven indicators of papermaking production were achieved, and the national plan was completed twenty-six days ahead of schedule, making contributions to the socialist revolution and socialist construction.

Gao's speech similarly highlighted the success of other Maoist practices and principles, like self-reliance and the efficacy of "three-in-one" combination teams in developing innovative comprehensive utilization schemes in their factory. Gao's account of the importance of self-reliance stressed that there were two different attitudes at his factory, which mapped once again onto *tu* and *yang* binaries: those who believed "we must rely on ourselves," repair old things, and be thrifty versus those who were "greedy" and had a "Westernized mindset."<sup>268</sup>

Of course, the point of the NCEP was less to innovate a wholly new anti-pollution approach at the factory level—that had already been "achieved"—but rather to formulate a national framework to resolve environmental problems that were growing ever-more complicated and spatially diffuse. From this perspective, the special knowledge that factory workers had due to their social position, and which they were supposed to bring to the NCEP, was precisely these conclusions which they had drawn from the Zhou-instigated mass campaign to eliminate the industrial "three wastes".

Speeches and reports by factory representatives at the NCEP were not merely triumphal, they also at times veered into self-critique. Some of these are predictable and familiar, like repeated

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<sup>268</sup> Gao Fengxiang高凤翔, "Qi Zhi Wuran Jianghe Huishou Bianwei Caifu -- Jilinzaozhichang Gaofengxiang Tongzhi Zai Quanguo Huanjing Baohudahui Shang de Fayan 弃之污染江河 回收 变为财富 -- 吉林造纸厂高凤翔同志在全国环境保护大会上的发言 . [Abandonment Pollutes Rivers, but Recycling Turns It into Wealth--Speech by Comrade Gao Fengxiang of Jilin Paper Mill at the National Environmental Protection Conference]," in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 15–19.

self-admonitions that their factory produced so much pollution only because they had not paid *enough* attention to Mao's sayings, or that comprehensive utilization was so effective in removing pollutants from society that their only mistake was not having done more of it yet. There were also explicit admissions that, despite achievements in comprehensively utilizing some wastes, there were still a large number of "three wastes" that went untreated.

Another self-criticism that emerged from the experiential accounts of factory workers dealing with the "three wastes" was their discovery of how pollution posed a contradiction between industry and agriculture, or between factory workers and peasants. Li Fuhai (李福海) of the Guangdong Maba Metallurgical Plant (广东马坝冶炼厂) emphasized this discovery in his speech and presented his factory's solution to it—perhaps unsurprisingly, through comprehensive utilization. I present a truncated version of his speech below:

We are a small copper smelting factory with 300 employees. In the early days of the factory, due to our one-sided thinking, we only paid attention to the smelting process and neglected the recovery and treatment of sulfur dioxide gas. Nearly 20,000 cubic meters of sulfur dioxide gas were discharged into the atmosphere every day. During a seven-day trial run, two to three hundred mu of rice around the plant withered, and nearby vegetation began to turn yellow. Cows that ate the grass had swollen mouths. The opinions of poor and lower-middle peasants were significant, and they came to the plant one after another, asking us to stop the pollution. We had to suspend production.

These mistakes and setbacks taught us a lesson. The whole plant has learned Chairman Mao's teachings on "taking agriculture as the base and industry as the leading factor" [以农业为基

础,工业为主导] and “comprehensive utilization is very important, we must pay attention to it”. From this, we understood whether to support agriculture or to harm agriculture. The factory leaders deeply mobilized the masses and offered advice and suggestions. Most workers advocated finding a way out through comprehensive utilization, recovering sulfur dioxide and producing sulfuric acid. There were a few people who believed that the production of sulfuric acid should be the business of the chemical industry, and the production of sulfuric acid by smelters like us is not proper. In order to unify our understanding, we made some calculations: if waste gas is not recycled, 400,000 to 500,000 cattles of grain will be lost every year; if waste gas is recycled, not only the problem of endangering agriculture can be solved, but also 700 tons of sulfuric acid can be produced every year. More than 700 tons of phosphate fertilizer can be produced from this, and grain production can be increased by 5 million to 7 million cattles. After this discussion, everyone said: “We must support agriculture and never do anything that harms agriculture!” With the improvement of our awareness, a “three-in-one” experimental group with workers as the main body was formed immediately, and a mass movement to recover sulfur dioxide, produce sulfuric acid, and turn waste into treasure was carried out in the whole factory.

A problem, however, persisted: when machinery broke down or production stopped and started, the concentration of sulfur dioxide increased again. Agricultural production around the factory decreased again, leading peasants to confront workers at a local “Learn from Dazhai” meeting, saying to them “We are determined to learn from Dazhai to generate high crop yields, but we really cannot handle the smoke from your smelter.” Workers responded by preparing another method to treat the sulfur dioxide gas, ultimately deciding to adopt a labor intensive, self-reliant method using lye to absorb the gas. Li claimed that by taking pollution seriously and

recognizing its relationship to agricultural production, the Maba smelter was able to resolve the contradiction between workers and peasants that industrial pollution had given rise to, leading to social harmony. “Now,” Li Fuhai proclaimed, “The factory even often sends people to repair the machine tools for the production team, and our relationship is very harmonious. A new situation has emerged in which workers and peasants support and promote each other. Now the workshop is so clean that not only have gas masks not been brought into the warehouse, but even simple facemasks are no longer necessary.”<sup>269</sup>

Wang Liwen (王立文) of the Shenyang Chemical Factory (沈阳化工厂) also gave a speech at the NCEP where he recounted the dangers that pollution posed to the “worker-peasant alliance.” He recounted how, in 1966, wastewater had destroyed 30 *mu* of farmland near their factory, resulting in “a severe reduction in grain production.” Blaming his factory’s “lack of understanding of the importance of treating the ‘three wastes’ and Liu Shaoqi-affiliated revisionist elements that prevented comprehensive utilization, Wang said that they also dumped toxic waste in surrounding fields, causing farmers to occasionally detain their vehicles. The factory’s chimneys emitted black smoke daily, spreading to nearby residential areas and villages causing asthma and bouts of coughing. In 1971, ten residents were poisoned by some unknown

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<sup>269</sup> Li Fuhai李福海, “Gaohao Yanqi Huishou Jiaqiang Gongnong Tuanjie -- Guangdong Maba Yelianchang Li Fuhai Tongzhi Zai Quanguo Huanjingbaohu Dahuishang de Fayan 搞好烟气回收 加强工农团结--广东马坝冶炼厂李福海同志在全国环境保护大会上的发言 Speech by Comrade Li Fuhai of Guangdong Maba Metallurgical Plant at the National Environmental Protection Conference; Improving Factory Smoke Recovery and Strengthening the Unity between Workers and Peasants,” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 20–23. The Dazhai commune was propagandized as a model example of self-reliant, politically correct rural development. During the Cultural Revolution, it was often referenced and promoted as a successful case of how collective labor, hard work, and revolutionary spirit could transform a poor, backward village into a prosperous and productive socialist community.

substance that was linked to the factory. Wang described the resulting contradiction between workers and peasants thusly:

Due to the serious harm caused by the “three wastes,” the opinions of the factory’s workers were divided, and surrounding residents and brother units constantly reported to us, demanding that we stop production, relocate, and caused tension with the surrounding farmers and residents. This affected the development of production.<sup>270</sup>

Peasants and agricultural production in the surrounding areas knew their labor and communities were directly affected by the pollution caused by the Shenyang Chemical Factory, even though they could not articulate the scientific details of the pollutants and chemical mechanisms at play. In this case, the peasants’ lived experiences of the pollution and its effects on their health and livelihoods gave them a different perspective on the issue than the workers at the factory who were responsible for causing the pollution—they lived the consequences in ways that factory workers could not. The notion of a rising contradiction between farmers and peasants caused by the industrial pollution of agricultural spaces was an important problem in *huanbao* that took shape through local incidences like this.

A report from the Jijie Smelter in Gejiu, a city in Yunnan (云南个旧市鸡街冶炼), was also shared among the NCEP attendees. Workers from the Jijie Smelter emphasized in their account

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<sup>270</sup> Wang Liwen 王立文, “Henzhua Lvbian Jiaoyu Xiaochu Wuran Weihai—Shenyang Huagongchang Wang Liwen Tongzhi Zai Quanguo Huanjing Baohu Dahui Shang de Fayan 狠抓路线教育 消除污染危害--沈阳化工厂王立文同志在全国环境保护大会上的发言 Pay Close Attention to Line Education and Eliminate Pollution Hazards--Speech by Comrade Wang Liwen of Shenyang Chemical Plant at the National Environmental Protection Conference,” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 10–14.

that what made workers' perspectives crucial to the ongoing formation of the environmentalist project was their ability to see the dangers of pollution up close and correctly advise cadres and managers about the significance of industrial pollution. The authors of their factory's report therefore emphasized the importance of revolutionary consciousness found among workers, writing:

To get rid of the smoke, first change your mind. How should we understand and solve the problem of dust removal? There is a struggle of our minds. At the beginning, some leaders lacked understanding of the significance of solving the smoke hazards, and were satisfied with 'increasing output and exceeding the plan's goals every year' and became accustomed to the smoke hazards.

Leaders were so intransigent to their concerns that they wrote a letter to the factory's Party Committee, making serious criticisms. The Party Committee responded by holding classes and self-criticism sessions. In this way, the entire factory had a "revelation" that this was a serious problem. Having established that step one was "changing the mind", they began to discuss step two: practical methods. To this, they again listened to the masses, who proposed a self-reliant plan that balanced *tu* and *yang* methods of smoke and dust removal involving a 3-million-yuan investment and 300 tons of steel. They also used "revolutionary criticism" to mobilize the masses and broaden awareness of pollution problems. The factory established "three-in-one" research team composed of leading cadres, veteran workers, and technicians, soliciting ideas and projects from everyone. "After a lot of scientific experiments and repeated deliberations and discussions," the report claimed, "a dust removal plan based on the actual situation of the factory and a combination of *tu* and *yang* was formulated." The report concluded triumphally that their

factory had “locked up black dragon”, eliminating smoke hazards and allow for the annual recovery of 600 tons of non-ferrous metals.<sup>271</sup> A later September 1974 article promoting the national importance of *huanbao* in the important Party journal *Red Flag*, captured how the epistemology of factory workers was a crucial component in Maoist environmental approaches: “The masses are heroes, and practice is the only way to acquire true knowledge. The vast number of workers who are fighting on the front lines of production have urgent demands to eliminate pollution and improve the environment, and they possess wisdom to manage pollution.”<sup>272</sup>

Pollution highlighted new contradictions between industrial workers and farmers, which in turn underlined the fact that the ways in which the industrial front and the agricultural front related to the environment were also different—beyond just that industrial pollution impinged on agricultural production. Peasant representatives from communes were invited to the NCEP as well. Though there were fewer peasant representatives than industrial ones, that they were included at all evidences that the NCEP marked the expansion of environmental problems beyond merely issues of comprehensive utilization of the “three wastes”.

## V. The Peasant

Representatives from agricultural communes focused largely on local afforestation or greening campaigns, explaining how they were using trees to engineer sustainable village ecologies. Importantly, these accounts rhetorically framed afforestation campaigns as responding

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<sup>271</sup> Yunnan gejiushi jijie yelian chang 云南个旧市鸡街冶炼厂 [Yunnan Gejie City Jijie Smelter], “Zili Gengshengsuo ‘Heilong’ 自力更生锁‘黑龙’ [Self-Reliance Locks up the ‘Black Dragon’],” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 70–74.

<sup>272</sup> Guo Huan 郭寰, “Zhongshi Huanjing Baohu Gongzuo 重视环境保护工作 [Emphasize Environmental Protection Work],” *Hongqi 红旗 [Red Flag]*, September 1974, 11–15.



not so much to new global insights about the dangers of pollution or the advancement of an ecological framework for understanding the nature of environmental problems. Rather, they framed their work as a continuation of Mao's afforestation campaigns of the 1950s. The East is Red Brigade from the Liaoning East is Red Commune in Chifeng county (辽宁赤峰县东方红公社, 东方红大队) sent representatives to explain how they had used tree windbreaks to turn wasteland into a fertile, green oasis. The Quyu brigade of the Xunzhen Commune in Hequ county, Shanxi (山西河曲县巡镇公社曲峪大队) shared how their small commune on the dusty, loess banks of the Yellow River followed Mao's 1952 instructions to plant more trees how, finally after 20 years, they had transformed the "old Quyu" that people fled just to survive into a verdant and fertile "new socialist countryside."

There are several noteworthy parallels between the accounts of agricultural communes describing their efforts to improve the environment and those of industrial factories. First and foremost was their shared integrationist, holistic approach to resolving problems that were seen to be connected through the environment. What differed, however, were the constituent components of that integrated approach between the different fronts of production. Accounts from agricultural communes emphasized the positive effects that afforestation had on agricultural production, natural disaster prevention, water control, soil loss, and improving the local environment for human habitation. Public health and pollution were hardly considerations at all, despite being central to integrationist solutions in industrial settings like comprehensive utilization of the industrial "three wastes." The East is Red Commune in Liaoning summarized their efforts thusly:

The success of afforestation has created conditions for opening canals to divert water and move sand to make fields; it has turned the desert sandy area into an oasis intertwined with forest belts, locked out the wind and sand, improved the climate, and effectively resisted natural disasters. In the past, there were strong winds and sandstorms and low temperatures in spring, and the annual frost-free period was short. Now there are forests to protect against wind and frost. These changes in environmental conditions have promoted a substantial increase in agricultural production.<sup>273</sup>

The Xunzhen Commune's Quyu brigade, moreover, described their afforestation practice alongside mountain management and water control, together constituting a broader "scientific" way to manage the integrated landscapes of "mountains, rivers, and fields" around their commune. "In terms of afforestation, mountain management, and water control," the Quyu brigade stated, "we adapt measures to local conditions and organically combine [有机结合] them according to different local conditions and tree growth habits." Tree planting became a tool through which to manage their broader ecology. There was the "right" tree for different parts of their community's ecology. By planting certain drought-resistant trees on their mountain, they were able to promote water and soil conservation on the mountain, as well as protect its slopes against erosion. By planting trees along roads and canals, they protected their farmland. By planting fast-growing trees such as poplar and willow alongside dam construction sites, they prevented soil erosion and protected the dams. In this fashion, they achieved their goal of

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<sup>273</sup> Liaoning chifeng xian dong fang hong gong she, dong fang hong da dui 辽宁赤峰县东方红公社，东方红大队 [The East is Red Brigade from the Liaoning East is Red Commune, Chifeng, Liaoning], "Zaolin Suo Fengsha Huangtan Bian Lv Zhou 造林锁风沙 荒滩变绿洲 [Use Afforestation to Prevent Sandstorms, Turn Wasteland into Oases]," in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 165–70.

“engineering nurturing biology, and biology protecting engineering” (工程养生物、生物保工程). In other words, afforestation allowed them to integrate human activities with natural processes in an ecologically sustainable way—a practice and ethic we now term ecological engineering.<sup>274</sup>

Through retelling to a Party audience these kinds of experiential stories, workers and peasants bolstered their unique positional knowledge on environmental problems, showing that they were important subjects of the *huanbao* project. As people who worked hands-on with pollutants and worked at the factory every day, workers had understandings about the nature of problems caused by those pollutants—and possible solutions. The contradiction between the worker and the farmer, so Maoist logic went, would be missed by scientists who worked wholly removed from factory settings working just on technical solutions to environmental problems. On this point, the East is Red Brigade explained that when they designed their forest belts, they did not “design the main forest belt as done by ‘experts’ in the past,” but instead planned it based on their own experiences and “reality.”<sup>275</sup>

The Party could use this sort of testimony to buttress the correct political line on environmental problems. It was also evidence that many of the values and practices that defined a Maoist approach to environmental problems worked in ways that apolitical approaches to

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<sup>274</sup> Shanxi hequxian xunzhen gongshe quyū dadui 山西河曲县巡镇公社曲峪大队 [Quyū Brigade of Xuntian Commune, Hequ County, Shanxi], “Zhishu Zaolin Shancun Ju Bian 植树造林 山村巨变 [Afforestation Can Bring Huge Changes to Mountain Villages],” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 171–77.

<sup>275</sup> Liaoning chifeng xian dong fang hong gong she, dong fang hong da dui 辽宁赤峰县东方红公社，东方红大队 [The East is Red Brigade from the Liaoning East is Red Commune, Chifeng, Liaoning], “Zaolin Suo Fengsha Huangtan Bian Lv Zhou 造林锁风沙 荒滩变绿洲 [Use Afforestation to Prevent Sandstorms, Turn Wasteland into Oases].”

environmental problems in capitalist countries could not. In this way, worker and peasant standpoint epistemologies underlined self-reliance, comprehensive utilization, three-in-one combinations, mass mobilization, thriftiness, and the unity of *tu* and *yang* approaches as critical components of *huanbao*.

I do not mean to imply here that workers' perspectives were cynically exploited, or that these speeches and reports did not represent real assessments, practices, and experiences—though exaggeration was hardly an uncommon feature of local reportage to the Party center. Rather, my point is to highlight how *huanbao* as a coherent and actionable framework for confronting environmental problems was historically constructed at the NCEP from China's broader intellectual and political landscape as it existed in the early 1970s.

To this point, looking backward from worker and peasant accounts presented at the NCEP, we can see now how Maoist epistemic categories elevated the voices and perspectives of people occupying certain social positions, like the worker and the peasant, thereby drawing integrationist and holistic practices from their respective realms of production into the orbit of *huanbao*. At the same time, however, the perspectives of the worker and the peasant presented at the NCEP were themselves disciplined and shaped by the Party's prior determination of the correct political line on environmental problems. Going back one more step, *that* correct political line was—ostensibly—itsself forged from worker accounts and the views of people like Hua Qingyuan. It was through such repeated refracting of problems through certain Maoist epistemological categories that *huanbao* took shape.

## **VI. The Expert**

## *The Guanting Reservoir Incident*

Scientific researchers and technicians were given a prominent voice at the NCEP. Some of their speeches and reports were summaries of recent practical techniques that different scientific institutions had developed and that were seen to be related to the environment. For example, the Chinese Academy of Agriculture and Forestry (中国农林科学院) presented new research on biological pest control. They proposed that instead of using toxic pesticides which was now known to poison humans and livestock, they could use biological methods to control pests, like “using insects to control insects” (以虫治虫) and “using microbes to control insects” (以菌治虫). For example, they explained how the larvae of certain crop-eating moth species could be reduced by releasing their “natural enemies”—wasps. Some local experiments in Zhejiang revealed that the fungi *Beauveria bassiana* (白僵菌) could be used to kill green rice leafhoppers and planthoppers, while another experimental group in Fujian found success using the fungi to control sweet potato weevils.<sup>276</sup> The Beijing Glass Research Institute and the Beijing Institute of Labor Protection Science (北京玻璃研究所 and 北京劳动保护科学研究所) co-presented research on how to safely produce thermometers and reduce exposure to mercury, which in many factories was for decades up to 40 times higher than the national health standard. The Shanghai Municipal Health and Epidemic Prevention Station (上海市卫生防疫站) gave advice on how to

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<sup>276</sup> Zhongguo nonglin kexueyuan 中国农林科学院 [Chinese Academy of Agriculture and Forestry], “Wo Guo Shengwu Fangzhi Keyan Gongzuo de Qingkuang 我国生物防治科研工作的情况 [Situation of Research on Biological Pest Control in China],” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 187–94.

strengthen environmental monitoring (环境监测), a crucial component in the early detection of potential public health problems.<sup>277</sup>

Arguably the most prominent scientific voice at the conference, however, was the multidisciplinary group of experts that composed the Guanting Reservoir Water Source Protection Leading Group (官厅水库水源保护领导小组; henceforth Guanting group). The Guanting Reservoir incident refers to reports of localized sicknesses in and around Beijing that were linked to a fish market in the winter of 1971. Preliminary investigation revealed that the fish were from the Guanting Reservoir. The National Planning Commission was given a broad remit to investigate the problem and formulate a solution. It is imperative to dwell on the Guanting Reservoir incident briefly here, as doing so is critical to understanding how scientific expertise and expert management came to be an important epistemological standpoint given voice at the NCEP and in the wider *huanbao* project. To do so, I look at internal investigation documents produced by the National Planning Commission's Guanting Reservoir Water Source Protection Leading Group in December 1972 for the State Council's consumption and then that same group's report presented for consumption at the NCEP.

The discovery of the serious pollution of one of the capital's main water sources instigated a sense of urgency that could not wait for the ongoing bottom-up mass campaign of

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<sup>277</sup> Beijing boli yanjiusuo he Beijing laodongbaohu kexue yanjiusuo 北京玻璃研究所 and 北京劳动保护科学研究所 [Beijing Glass Research Institute and the Beijing Institute of Labor Protection Science], "Wenduji Shengchangzhong Fangzhi Gonghai de Shiyan 温度计生产中防治汞害的试验 [Prevention and Control of Mercury Hazards in the Production of Thermometers]," in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]*, ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 195–200.

comprehensive utilization to percolate to all the different origins of the reservoir's pollution. Official reports about the incident demonstrate a strong sense of urgency. One might even sense a lack of confidence in the capacity of factories to self-regulate through comprehensive utilization campaigns quickly enough to save Beijing's water supply. The Guanting group's conference report stated disapprovingly that most of the factories upstream of the reservoir did not even have comprehensive utilization or waste treatment measures.<sup>278</sup> As such, because the Guanting Reservoir's chemical integrity implicated, quite literally, the health of the Party center, the source and causes of the pollution needed to be traced in a coordinated, controlled, top-down method, and—most importantly—quick way. Beijing's 1974 conference on *huanbao* reflected this same idea, stating that this was why *their* work on environmental protection was especially important: it implicated the health of Mao himself.

The meeting pointed out that Beijing is the place where Chairman Mao lives, the seat of the Party Central Committee, and the political center of the country. Therefore, as one of the key cities for environmental protection, it is necessary to accelerate the pace of treatment of the “three wastes.”<sup>279</sup>

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<sup>278</sup> Guanting shuiku shuiyuan baohu lingdao xiaozu 官厅水库水源保护领导小组 [Guanting Reservoir Water Source Protection Leading Group], “Quanmian Guihua Dali Xietong Tongyi Zhili: Guanting Shuiku Zhili Gongye Feishui Baohu Shuiyuan de Tihui 全面规划大力协同 统一治理: 官厅水库治理工业废水保护水源的体会 [Comprehensive Planning, Strong Coordination, and Unified Governance: Reflections on Protecting the Water Source by Treating Industrial Wastewater in Guanting Reservoir],” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编* [Selected Compilation of Environmental Protection Experiences], ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 41–48.

<sup>279</sup> Benkan bianweibu 本刊编辑部 [The editorial department of this magazine], “Wei Wancheng 1974 Nian de Huanjing Baohu Renwu Er Nvli Fendou 为完成 1974 年的环境保护 任务而努力奋斗 [Strive Hard to Complete the Task of Environmental Protection in 1974],” *Huanjing Baohu 环境保护* [Environmental Protection], no. 1 (February 1974): 4–6.

This is why the Guanting group was ultimately composed mostly of technicians and scientific experts, many from the central government itself, under the supervision of central and provincial leaders. The participation of the latter group is why Qu Geping considered it significant as a state-led project. But it was also importantly an expert-led project. It is for this reason that I read the Guanting group's report at the NCEP as making the case for what role expert knowledge and their practices would play in relation to the other epistemological standpoints as *huanbao* was articulated at this early stage.

The process of investigating and finding solutions to the Guanting reservoir's pollution yielded an interpretation of the expert's role in *huanbao* fulfilling two particular responsibilities. First, it led to the belief that there needed to be specific institutions peopled by experts dedicated to the management of "three wastes" and environmental problems. In this sense, the Guanting Reservoir propelled the establishment of the transdisciplinary expert as its own kind of person that was responsible for unifying different knowledge disciplines in confronting "three wastes" problems. Environmental historians Paul Warde, Libby Robin, and Sverker Sörlin figured the "ecologist" as playing a similar kind of role in the Western context, as a sort of "meta-expert" or "meta-specialist" that combined previously discrete specializations into one. "More than a biome," they explained, "an ecosystem became properly the subject for study by physicists, soil scientists, and chemists, along with biologists." Those who studied ecosystems "thereby reconfigured ecology itself as a new meta-discipline or, as we might say, a meta-specialization, rather than a mere subdiscipline of biology."<sup>280</sup> A core principle forged in resolving the pollution of the Guanting Reservoir was the need to unify work between different scientific groups.

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<sup>280</sup> Warde, Robin, and Sörlin, *The Environment: A History of the Idea*, 103-105.



Second, the experience of the Guanting Reservoir showed that scientific experts were critical investigators that produced knowledge about how different polluting sources converged across time and space to create a problem for public health or production. That is, they were able to trace the “three wastes” as they travelled through a landscape, teasing out where they came from.

In his important NCEP speech on August 7, Gu Ming (顾明) mentioned the Guanting Reservoir incident several times, saying that the pollution of the Guanting Reservoir was significant because it “not only affected the industrial and agricultural water use in the capital, but also posed a great threat to surface water in Beijing, Kunming Lake, and in Zhongnanhai.”<sup>281</sup> The Guanting Reservoir was indeed the main source of water for industrial, agricultural, and domestic use in Beijing. Its water also supplemented Beijing’s underground drinking water supply. The December 1972 report from the National Planning Commission stated that “protecting the water quality of the Guanting Reservoir is a crucial matter of ensuring the capital’s water safety. It is a serious political task that must be taken seriously with immediate action and measures through the struggle of the line.” In other words, its pollution affected the water that Party leaders themselves (who lived at the Zhongnanhai compound) might consume. As such, the discovery of its pollution set off urgent alarm bells in Beijing. Though difficult to know with any certainty, the role that central Party leaders’ sense of their own bodily integrity against pollution played in the development of concerted, national attention to industrial pollution is a curious contingent factor to consider. Regardless, a solution could not wait to

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<sup>281</sup> Gu, “Yi Lvxiang Wei Gang Gaozhao Huanjing Baohu Wei Guangda Renmin He Zisun Houdai Zaofu -- Gu Ming Tongzhi Zai Quanguo Huanjing Baohu Huiyi Shang de Fa Yan 以路线为纲搞好环境保护 为全国人民和子孙后代造福 -- 顾明同志在全国环境保护会议上的发言 [Taking the Line as the Guiding Principle, We Must Do a Good Job in Environmental Protection for the Benefit of the Vast People and Future Generations – Speech by Gu Ming at the National Conference on Environmental Protection].”

emerge from the loosely coordinated and policed mass campaigns of comprehensive utilization of the industrial “three wastes.”

The National Planning Commission responded by establishing the Guanting Reservoir Water Source Protection Leading Group. The group was composed partly of Party and state officials in affected regions, like Beijing, Tianjin, Hebei, and Shanxi provinces. The bulk of the Guanting group though was composed mostly of technicians and scientific experts from institutions like the National Planning Commission, the National Construction Commission, the Ministry of Chemical Industry, the Ministry of Metallurgical Industry, the Ministry of Light Industry, the Ministry of Health, the Ministry of Agriculture and Forestry, and the Chinese Academy of Sciences. The main task of this group was to coordinate their different disciplines and technical knowledge to “organize investigations and research, propose pollution control plans, draft management methods for protecting water sources and water quality, inspect the treatment of the ‘three wastes’ from factories, strengthen water quality testing, establish a regular testing system, and promptly report to higher authorities.” This built momentum for the institutionalization of anti-“three wastes” activity under the auspices of expert-led investigation and monitoring of water sources.

After a year of investigation, the National Planning Commission summarized their findings about the origins of the pollution of the Guanting Reservoir and its relationship to human activity upstream:

The water appears yellow and murky, with white foam and a bitter medicine-like taste, and dead fish are increasing. Since 1971, people from four villages including Beizhai on the east side of the dam have experienced weakness, headaches, and stomach pain after

drinking the reservoir water. In March of this year, people in Huailai and Daxing counties experienced nausea and vomiting after eating fish from the Guanting Reservoir that had an unusual odor. Laboratory tests have shown that the water quality has been polluted and is rapidly deteriorating. The culter fish [小白鱼] and bighead carp [胖头鱼] produced by the reservoir contain 2 milligrams of DDT per kilogram (Japan's standard is not to exceed 0.011 milligrams, and the Soviet Union's standard is not to exceed 1 milligram). This spring, 40,000 pounds of fish purchased from the reservoir could not be sold...Preliminary investigations have found that the main reason for the deterioration of water quality is the serious pollution of the Yanghe River [洋河] upstream of the reservoir by industrial wastewater from Shacheng and Xuanhua. The Shacheng pesticide factory is one of the main sources of pollution for the reservoir.

Other factories upstream of the Guanting Reservoir were responsible too, like the Xuanhua Iron and Steel Company's coking plant, the Xuanhua Paper Mill, the Xuanhua Nitrogen Fertilizer Plant, and the Xuanhua Pesticide Plant—all of which together discharged 58,000 tons of wastewater containing phenol, alkali, and nitrobenzene into the Yanghe River every day. The Datong Locomotive Factory and the Datong Rubber Products Factory also discharged untreated wastewater into the Sanggan River.<sup>282</sup> Later, at the NCEP, the Guanting group claimed that they ultimately investigated more than 500 upstream factories, linking them to 30 kinds of poisonous

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<sup>282</sup> Guojia jihua geming weiyuanhui 国家计划革命委员会 [National Revolutionary Planning Commission], "Guojia Jiwei, Guojia Jianwei Shangbao Guowuyuan 《guanyu Guanting Shuike Wuran Qingkuang He Jiejue Yijian de Baogao》 国家计委、国家建委上报国务院 《关于官厅水库污染情况和解决意见的报告》 ["Report on the Pollution Situation and Solution Proposals of Guanqian Reservoir" Submitted by the National Planning Commission and the National Construction Commission to the State Council]," in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 445–47.

substances found in the reservoir water. Through this process, they “gradually confirmed that the main source of pollution of rivers and reservoirs is the industrial wastewater discharged from various factories, the use of pesticides in farmland and the loss of natural minerals.”

But determining these facts required an enormous amount of transregional and transdisciplinary investigation, mobilization, testing, and collaboration between different scientific groups. The Guanting group determined that treating the “three wastes” and preserving the quality of water sources was “a comprehensive and multidisciplinary work, which cannot be completed by one unit or one department.” It involved “investigations, scientific research, and technological battles through strong collaboration.” It required “pooling the wisdom” from the realms of production, scientific research, factory design, management, and combining them with the right politics. To this point, they cited an example of how they “united in cooperation and overcame difficulties together” to resolve the wastewater problems at a chloroprene rubber (氯丁橡胶) factory in Datong that had contributed the pollution of the reservoir. Solutions to this factory’s wastewater problem had “no domestic or foreign data or experiences to reference.” As such, they had no choice but to create a task force involving a range of organizations and institutions: the Institute of Microbiology of the Chinese Academy of Sciences, the Institute of Environmental Protection Research of Beijing, the Central South Design Institute, the Qingge Chemical Plant, the Sichuan Hongwei Chemical Plant, the Sichuan Eighth Chemical Design Institute, the Southwest Research Institute of Chemical Industry, and the Southwest Water Supply and Drainage Design Institute. These groups worked together to develop a highly technical, three-stage treatment scheme to treat the factory’s “three wastes.” The Guanting group framed this collaboration of different expert groups in Maoist terms, writing:

The scientific research, design, and production departments and all comrades who participated in the specific work of the protection of the Guanting Reservoir water source worked together in accordance with Chairman Mao's teaching to 'unite and strive for greater victory' ... Practice has proved that promoting the great revolutionary collaboration is an important measure for the efficient and effective implementation of the 'three wastes' treatment and water source protection work.

The title of the investigation team's report, presented to all NCEP attendees, stated upfront that this conclusion was their message: "Comprehensive Planning, Collaborative Efforts, and Unified Governance: Experience of treating industrial wastewater and protecting water sources of the Guanting Reservoir."

In this way, the Guanting Reservoir incident gave rise to the implicit recognition that comprehensive utilization *alone* was in fact not dynamic enough, could not integrate enough parts to capture all the different entangled material relationships that scientific investigation had made chemically visible and that global developments in environmental science gave conceptual vocabulary to. To this point, the Guanting investigation group also charged that the management of the "three wastes" and the protection of water sources were just "empty programs" if they did not have specific, dedicated expert water protection organizations "in charge of the entire situation." They suggested in their NCEP report that the issue of institutional oversight would be central to "three wastes" issues going forward:

Over the past year, we have successively established regional water source protection leadership groups, "three wastes" management offices, integrated management teams, and monitoring centers at provincial, municipal, regional, and factory levels. The establishment

of these institutions has played a significant role in propaganda and education, investigation and research, planning formulation, organization and coordination, and experience exchange. From our practical work, we have realized that water source protection is an integral part of environmental protection and a long-term and arduous task. There must be unified leadership and long-term planning. There must be unified standards and management methods, and a special authoritative organization to ensure the continuous progress of water source protection. At the same time, it is necessary to establish some regional management organizations in accordance with local conditions and check at each level to make governance.<sup>283</sup>

Hua Guofeng's July 31, 1973 report to Zhou also concluded by asking for the State Council's feedback on whether they should plan on building China's environmental monitoring efforts (环境监测机构) on the scaffold of "existing health and epidemic prevention stations" (利用现有卫生系统卫生防疫站), which they admitted was "more realistic and feasible". On the other hand, Hua also explained that the State Council may also want to consider dedicated environmental institutions as had been done in foreign countries—no doubt inspired by the lessons of the Guanting Reservoir incident.<sup>284</sup>

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<sup>283</sup> Guanting shuiku shuiyuan baohu lingdao xiaozu 官厅水库水源保护领导小组 [Guanting Reservoir Water Source Protection Leading Group], "Quanmian Guihua Dali Xietong Tongyi Zhili: Guanting Shuiku Zhili Gongye Feishui Baohu Shuiyuan de Tihui 全面规划大力协同 统一治理: 官厅水库治理工业废水保护水源的体会 [Comprehensive Planning, Strong Coordination, and Unified Governance: Reflections on Protecting the Water Source by Treating Industrial Wastewater in Guanting Reservoir]."

<sup>284</sup> National Planning Commission 国家计划革命委员会, "Guanyu Quanguo Huanjing Baohu Huiyi Neirong, Kaifa He Qingshi de Ji Ge Wenti" 关于全国环境保护会议内容、开法和请示的几个问题 [Several Questions about the Content, Methods, and Request for Instructions of the National Environmental Protection Conference]."

After the NCEP, many preexisting organizations involved in health, industrial hygiene, construction planning, and related disciplines would change their name to include *huanjing baohu* to denote their relationship to this new realm of governance. Other organizations with *huanbao* in the title would be founded from scratch, as something entirely new. For example, the aforementioned Institute of Environmental Protection Research of Beijing (北京市环境保护研究所) was not called such until 1973. Prior to that year it was the Beijing Municipal Research Institute of the Ministry of Construction and Industry (建工部市政研究所).

Around 1970, the history of the environment as a concept entered a second “mature” stage defined by the emergence of specific ministries and departments dedicated to the environment. This phase was marked by a “plethora of environmental nongovernmental organizations, and a sometimes-bewildering new alphabet of acronyms denoting attempts to integrate scientific and policy communities” as well as the coupling of the environment and development after the 1972 UNCHE.<sup>285</sup> The NCEP signified the PRC’s participation in this broader global phenomenon of uniting scientific and policy communities through specific environmental institutes.

The Guanting group, however, was well aware of the tensions between expert/technocratic versus mass approaches to environmental problems, and that their conclusions might add weight to the technocratic approach. In their report presented at the NCEP, they dedicated an entire section to this implicit tension—whether genuine or not, it was a

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<sup>285</sup> Warde, Robin, and Sörlin, *The Environment: A History of the Idea*, 202.

prophylactic against possible accusations that they were too *yang* focused. They began by paying fealty to the correct revolutionary practices of mass movements and self-reliance.

Chairman Mao taught us: “Every job must be carried out as a mass movement. Without mass movements, one cannot succeed.” He also taught us: “What is the basis of our policy? It is based on our own strength, which is called self-reliance.” To combat the hazards of “the three wastes” and protect water sources, we must launch mass movements and implement the policy of self-reliance.

However, they went on to say, of the 500 factories upstream of the Guanting Reservoir, the “vast majority” did not have wastewater treatment facilities. Others that did once have them had abandoned them “due to the disruptions and sabotage by counter-revolutionary revisionists like Liu Shaoqi and Lin Biao.” That was to say nothing of the general lack of experience, knowledge, and equipment needed to protect water sources. This conundrum raised a natural question:

Faced with these difficulties, should we rely on the masses to be self-reliant, dare to do and be creative, or rely on experts and demand their support? [在这些困难面前, 是依靠群众自力更生干、闯、造, 还是依靠专家两眼向上等, 靠, 要?] Should we adopt simple and practical methods or wait for new technologies and rely on foreign countries?

Their answer was: “We insist on mobilizing the masses, self-reliance, replacing the *yang* (foreign) with the *tu* (indigenous), and integrating the *tu* and the *yang*” (我们坚持了发动群众, 自力更生, 以土代洋, 土洋结合). They explained, furthermore, that though they as experts



could identify the fact that various factories were the origin points of the wastewater poisoning the Guanting Reservoir, it was the workers inside the factory that were responsible for coming up with solutions.

For example, the Shacheng pesticide factory mobilized the masses, processed its own equipment, reformed its technology, and controlled its wastewater. The Xuanhua paper mill relied on the masses to repair and reuse old equipment and built an alkali recovery project. The Datong locomotive factory relied on its own strength to build and put into operation a phenol wastewater biochemical treatment project in a short period of time. The Datong coal chemical plant relied on self-reliance to control the “Yellow Dragon” [nitrogen dioxide smoke] and other issues, all completed while promoting mass movements and adhering to the policy of self-reliance. Therefore, many factories summed up their experiences with the saying: “Relying on the masses to work hard, break through, and innovate, [依靠群众干、闯、造] the treatment of ‘the three wastes,’ will be effective early on, while looking upwards with both eyes in relying on and making demands from experts above, we will not effectively protect water sources.”<sup>286</sup>

In other words, they admitted that expert responsibilities were still ultimately complementary, or facilitative, to the core Maoist practices like comprehensive utilization and thrifty innovation of indigenous, self-reliant practices. The institutional expert could trace toxic water to a factory door, but once that link was identified, the factory was still to innovate their own solutions based

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<sup>286</sup> Guanting shuiku shuiyuan baohu lingdao xiaozu 官厅水库水源保护领导小组 [Guanting Reservoir Water Source Protection Leading Group], “Quanmian Guihua Dali Xietong Tongyi Zhili: Guanting Shuiku Zhili Gongye Feishui Baohu Shuiyuan de Tihui 全面规划大力协同 统一治理: 官厅水库治理工业废水保护水源的体会 [Comprehensive Planning, Strong Coordination, and Unified Governance: Reflections on Protecting the Water Source by Treating Industrial Wastewater in Guanting Reservoir].”

on worker-centered “three-in-one” combination teams—a policy that the December 1972 report to the State Council called “solving problems from within the factory first” (首先在本厂解).<sup>287</sup>

### *Researching with the Masses*

The Beijing Municipal Revolutionary Committee’s Three Wastes Management Office (北京市革委会三废治理办公室, henceforth Beijing Three Wastes Office) presented their work at the NCEP too. In a report titled “Making the capital a clean city with the struggle against the wrong line as the guideline” (以路线斗争为纲 把首都建成一个清洁的城市), they provided a broad overview of their experience dealing with the “three wastes” in Beijing over the past year. Beijing was one of the only municipalities in China to have done so in a coordinated fashion, once again due to its status as the capital city and residence of Party leadership. After carrying out over 180 pollution control projects in the city since early 1972 following “Premier Zhou’s instructions”, they wrote proudly, “Our environmental protection work has gone through a process from not being aware to gradually being aware, from no one caring to someone caring.”

Their report also revealed another way in which the “expert” played a role in *huanbao* projects: by producing knowledge and research about “three wastes” problems through collaborating with workers. “In scientific research on environmental protection,” they wrote, “we combine professional research with extensive experimental research conducted by the masses.”

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<sup>287</sup> Guojia jihua geming weiyuanhui 国家计划革命委员会 [National Revolutionary Planning Commission], “Guojia Jiwei, Guojia Jianwei Shangbao Guowuyuan 《guanyu Guanting Shuiku Wuran Qingkuang He Jiejue Yijian de Baogao》 国家计委、国家建委上报国务院 《关于官厅水库污染情况和解决意见的报告》 [“Report on the Pollution Situation and Solution Proposals of Guanqian Reservoir” Submitted by the National Planning Commission and the National Construction Commission to the State Council].”

In this way, new scientific knowledge and anti-pollution technologies could be developed while not making it seem that they appeared to be the product of elite scientists working in isolation, divorced from the masses.

The Beijing Three Wastes Office recognized that during their study of “Chairman Mao’s teachings on criticism and self-criticism, as well as the instructions of Chairman Mao, Premier Zhou Enlai, and the State Council on environmental protection” they claimed to realize that “doing a good job in environmental protection is a major issue in implementing Chairman Mao’s revolutionary line.” More specifically, they recognized that protecting the capital’s environment required strengthening the idea that “masses were the real heroes” and protecting the capital’s environment required “the full mobilization of the masses.” Still, experts and scientists played a part. For example, while devising solutions for smoke and dust removal, they found that some projects had no preexisting technical solution. As such:

[S]cientific research institutes and universities have been actively involved in more than 20 research units, including the Institute of Chemistry, the Institute of Health Research of the Academy of Medical Sciences, the Institute of Labor Protection, Beijing Medical College, Beijing Epidemic Prevention Station, etc. With the specific assistance of the Chinese Academy of Sciences since 1972, they have taken the initiative to undertake more than 30 research projects.

One example of how scientific experts from expert-peopled, ivory tower institutions worked together with workers was when the Beijing Labor Protection Institute worked with workers at thermometer factories to jointly study and control occupational hazards.<sup>288</sup>

Another example was in their approach to wastewater treatment, which they recognized could not always be done purely by relying on resources within an individual factory. In some cases, this meant not utilizing new technology or scientific methods, but merely sending wastewater from the city and its factories to rural communes or school-run factories for *them* to comprehensively utilize it. The notion that certain places or production facilities were better placed to comprehensively utilize certain substances than other places is interesting, though I have found no other examples of this beyond this case from Beijing. In any case, another approach to problems that could not be solved within the factory, involved “combining internal and external resources through a ‘three-in-one’ combination outside the factory.” “Since 1972,” the Beijing Three Wastes Office explained, “all environmental protection projects included in Beijing’s research plans have been jointly undertaken by factories, universities, and research institutions.” Through such “three-in-one” combinations, they charged, both mass science and expert science could be integrated in producing new approaches to *huanbao*. Such a model was compelling as it offered a way to use Maoist categories to justify involving others outside the factory. After all, the NCEP itself was in many ways just such an exercise in “combining internal and external resources” to combat environmental problems on a national level.<sup>289</sup>

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<sup>288</sup> The people involved in the joint project with the Labor Protection Institute and the thermometer factory also presented their work at the NCEP.

<sup>289</sup> Beijingshi geweihui sanfei zhili bangongshi北京市革委会三废治理办公室 [Beijing Municipal Revolutionary Committee’s Three Wastes Management Office], “Yi Lvbian Douzheng Weigang Ba Shoudu Jiancheng Yige Qingjie de Chengshi以路线斗争为纲 把首都建成一个清洁的城市 [Making the Capital a Clean City with the Struggle against the Wrong Line as the Guideline],” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编*

## *Medical Experts*

Medical experts were another type of expert that associated themselves with *huanbao*. Xie Hua (谢华), a high-level official at the Ministry of Health, gave a speech at the NCEP representing the Ministry of Health's interpretation of their medical expertise to the environment. Due to his position as a cadre in a technical institution like the Ministry of Health, Xie Hua occupied two standpoint epistemologies at once: cadre and expert. I use essentialized categories of proletarian, peasant, expert, and cadre to explain how beliefs about different social relationships to knowledge came together to create a Maoist *huanbao* at the NCEP. This is because it was through those essentialized categories that thinking operated and frameworks like *huanbao* took shape. In reality, however, these standpoints “were also somewhat slippery, and the categories often overlapped in various ways.”<sup>290</sup> Xie Hua offers one such “slippery” personage, showing how the cadre and the expert could exist in the same person. His speech itself reveals how he navigated these two positions. For example, as a high-level cadre, he explained what state medical institutions ought to do going forward and what the correct political lines were. As a medical expert, he advocated for what special skills they could bring to the *huanbao* project that were still nonetheless subordinate to the correct revolutionary political line and complement central practices like comprehensive utilization.

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[*Selected Compilation of Environmental Protection Experiences*], ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 187–94.

<sup>290</sup> Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China*, 42.

Xie began his speech by stating that just as human bodies and the environment were now deeply materially intertwined—the physical barriers between the two now known to be less permeable—so too now were medicine and *huanbao*.

The prevention of many diseases is inseparable from the improvement of the environment. For example, to eradicate plague, we must eradicate plague foci; to eradicate schistosomiasis, we must eradicate the area of oncomelania foci [freshwater snails that carry the schistosomiasis parasite]. These are inseparable from the fight against environmental pollution. Today, with the development of industry, the discharge of “three wastes” has brought some new problems to the environment and has some new impacts on human health. The health sector must be actively involved in the battle to protect the environment and combat pollution. Only in this way can we take the initiative in the prevention of diseases. Otherwise, not only will there be no cure for diseases caused by industrial poisons, but it will also damage the labor force, affect production, and more importantly, cause adverse political effects.

Of course, knowledge about the connections between biological organisms existing outside the body posing a danger to human health was not a new insight. But it took the concept of the environment to unite the dangerous biological organisms that existed in and of the natural world with industrial diseases. The unification of these two different ways in which diseases enter the human body through the environment—one biological and *of* the environment itself, and one industrial that merely transited the environment in route from one human activity to another—was an important feature of *huanbao* articulated here by Xie.

In light of the power and responsibility demanded of this new knowledge about the expanded relationship between diseases and the environment, Xie argued that medical experts had become critical components of the *huanbao* regime. Xie stated that one of the responsibilities of medical experts was to identify and locate health problems related to the environment, whether biological or industrial in nature.

Monitoring is the eyes, ears and sentinels of environmental protection. It covers a wide range of areas and is related to all aspects of industrial and agricultural production and people's lives. There are water issues, atmospheric issues, and noise issues. The monitoring work is very important and the task is arduous, so we must make up our minds and do it well.

The health departments around the nation should first focus on finding out the scope, degree and trend of environmental pollution caused by common poisons such as chlorine, phenol, chromium, phenol, sulfur dioxide, dust, and radioactive substances. These are industrial poisons that seriously endanger the health of workers and citizens. Health departments at all levels should actively do a good job in monitoring according to the spirit of this meeting. It is suggested that all provinces, municipalities and autonomous regions should include this work in their plans.<sup>291</sup>

Recall, moreover, that the poisoning of the Guanting reservoir was only apparent due its affects in human bodies and *not* because it was simply discovered to have a certain chemical composition without that context. The “sentinel of environmental protection” would be an

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<sup>291</sup> Xie Hua, “Weishengbu Xie Hua tongzhi zai quanguo huanjing baohu huiyishang de fayan 卫生部谢华同志在全国环境保护会议上的发言) Comrade Xie Hua from the Ministry of Health’s Speech at the National Conference on Environmental Protection.” (unpublished speech transcript, 1973), typescript.

important cog that medical knowledge, medical workers, and health institutions would play in the *huanbao* machine.

This conceptualization is also reflected in one of the main planning points of an environmental protection meeting held by the municipality of Beijing following the NCEP. That conference concluded that going forward the role of scientific research in confronting the “three wastes” would be mostly investigatory in nature.

Scientific research departments and relevant units should strive to complete the city’s environmental protection scientific research tasks, especially speed up the scientific research work on the environmental quality assessment of the western suburbs and the Guanting Reservoir, and start the investigation of the environmental quality of the southeastern suburbs. Health departments should actively carry out investigations and research on the impact of environmental pollution on human health. All industrial bureaus should include environmental protection scientific research work in their plans. We should further improve the city’s environmental protection monitoring system and improve the quality of testing.<sup>292</sup>

In this way, testing for the “three wastes” became a fundamental pillar of scientific practice upholding the *huanbao* regime. Testing the nation’s water, soil, and air could map out where the “three wastes” pollutants were, whence they came from, and gave experts a role that was still subordinated to the masses and proper revolutionary practices like comprehensive utilization.

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<sup>292</sup> Benkan bianweibu本刊编辑部 [The editorial department of this magazine], “Wei Wancheng 1974 Nian de Huanjing Baohu Renwu Er Nvli Fendou为完成 1974 年的环境保护 任务而努力奋斗 [Strive Hard to Complete the Task of Environmental Protection in 1974].”



The Guanting group also emphasized the capacity of experts to identify, investigate, and trace pollution through the landscape. Xie merely expanded that remit to the human body. He emphasized experts' technocratic ability to carry out scientific research, calling for able medical, scientific, and teaching institutions to research the impact of environmental pollution and food residues on human health. The *tu* and *yang* binary once again shaped this approach. Xie exhorted that treatment methods and research should "use integrated traditional Chinese and Western medicine." Moreover, in the same way that the Guanting group recommended that experts had the knowledge to set certain water pollution standards and then could test and monitor China's waterways to ensure those standards were met, Xie argued that medical institutions should play a similarly supervisory role:

Hygienic standards are the standards for ensuring people's health and environmental safety. Living and working in an environment that meets hygienic standards is harmless to health. Although some standards have been revised many times now, they must be continuously enriched and improved with the development of science and technology in the future. The permissible standards for residues of toxic substances in grains, vegetables, and foods will need to be stipulated successively.

Xie also went on to say that they should train "environmental protection and health professionals" at medical colleges and universities, stating that there must also be "planned training of middle and junior technical personnel."<sup>293</sup> Both the Guanting group and the NCEP preparatory group also advocated for professionalizing environmental problems, making them

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<sup>293</sup> Xie Hua, "Weishengbu Xie Hua tongzhi zai quanguo huanjing baohu huiyishang de fayan 卫生部谢华同志在全国环境保护会议上的发言) Comrade Xie Hua from the Ministry of Health's Speech at the National Conference on Environmental Protection."

the remit of both new environment-dedicated disciplines as well as a natural, embedded responsibility of pre-existing knowledge disciplines and their institutions.

### *Recyclers*

Another practice that was folded into the *huanbao* project at the NCEP was the recycling of municipal and household waste. The NCEP organizers invited the Office of Waste Management of the Beijing Municipal Revolutionary Committee (北京市革委会三废治理办公室 or OWM) to give a report at the conference. Recycling had a long history in Beijing. In *Remains of the Everyday: A Century of Recycling in Beijing*, Goldstein provides a deeper history of the interaction between the state and people surrounding recycling activities in Beijing, showing how the practice changed across the Republican, Mao, and post-Mao periods. Goldstein noted that words like *huanjing baohu* and *wuran* (pollution) began appearing in his documents from the Beijing Recycling Company (BRC) around 1974. The NCEP formalized the connection between this form of recycling and *huanbao*, turning recycling into an environmentalist practice.

Goldstein explained that starting in 1965, the objects of recycling were no longer called “waste goods” (废品 *feipin*), but “old/disused materials” (废旧物资 *feijiu wuzi*). Indeed, this change was reflected in the report they shared at the NCEP, titled “Recycle waste to protect the environment: The situation in Beijing for handling garbage and feces and recycling old/disused materials” (收旧利废 保护环境 -- 北京市处理垃圾粪便和回收废旧物资的情况). Importantly, though recyclers did often work with waste from industrial spaces, *feijiu wuzi* does not directly map onto the industrial “three wastes”. Rather, it encompassed all kinds of materials that the city

produced. The OWM listed that the 300,000 tons of *feijiu wuzi* it recycled in 1972 was composed of: scrap steel, non-ferrous metals, paper fiber and wastepaper, broken glass, plastic waste, rubber waste and used tires, mixed bones, and human hair. Though they also dealt with recycling fecal matter, household garbage, and beautifying the city.

In their report, the OWM explicitly reconceptualized the longstanding Maoist ethos of “frugality” and the waste reutilization practices they had long been engaged in, which the Party-state under Mao had since the 1950s predominantly framed as supporting the productive capacity of the nation, as a *huanbao* activity and as aimed at preventing public hazards.<sup>294</sup>

During the production and consumption process, a great deal of industrial and household waste is constantly produced, which still has use value. In accordance with the policy of frugality and comprehensive utilization proposed by our great leader Chairman Mao, these wastes are collected and processed through classification, turning old into new, harms into benefits, and useless into useful. This is an important measure to increase and save production, as well as a crucial aspect to protect and improve the environment, prevent and reduce public hazards.<sup>295</sup>

By describing recycling as an environmentalist or anti-public hazard practice, the OWM marked self-conscious shift away from recycling as solely an economic or production practice.

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<sup>294</sup> Adam Liebman, “Reconfiguring Chinese Natures: Frugality and Waste Reutilization in Mao Era Urban China,” *Critical Asian Studies* 51, no. 4 (August 31, 2019).

<sup>295</sup> Beijingshi geweihui sanfei zhili bangongshi北京市革委会三废治理办公室 [The Office of Waste Management of the Beijing Municipal Revolutionary Committee], “Shoujiulifei, Baohuhuanjing, Beijing Shichuli Lajifenbian He Huishou Feijiuwuzi de Qingkuang 收旧利废 保护环境 北京市处理垃圾粪便和回收废旧物资的情况 [Recycle Waste to Protect the Environment: The Situation in Beijing for Handling Garbage and Feces and Recycling Old/disused Materials],” in Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences], ed. Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference] (Renmin chubanshe, 1973), 187–94.

Ironically, despite these efforts to recontextualize their work as *huanbao*, Goldstein writes that by the end of the 1970s, Beijing's recycling system "began to appear 'backward' and unorganized." Ironically, Goldstein attributes this to the discourse of environmental protection itself that impelled policymakers to want to clean up Beijing and make it look more modern and cleaner by getting rid of the haphazard, ubiquitous, and informal recycling system. "Once a laudably modern and urban activity," Goldstein wrote, "recycling processing was now presented as polluting, unpleasant, and incompatible with the image of salubrious modern urbanism." This evidences once again the fluidity what did and did not constitute *huanbao* over time.

## VII. The Cadre

### *Elevating "Three Wastes" to the Line*

Next to—and at times above—the worker, the peasant, and the expert in the *huanbao* project was the cadre. In the "rural scientific experiment movement" of the 1960s (农村科学实验运动), Schmalzer explained that "three-in-one" combination teams were composed of old peasants with practical experience, educated youth with revolutionary zeal, and cadres with correct political understanding.<sup>296</sup> At the local or workplace level, cadres were supposed to have both theoretical knowledge and practical experience and were responsible for applying the correct Party line to specific local conditions. In factory "three-in-one" comprehensive utilization groups, the cadre was expected to use their political and ideological training to help workers and experts understand each other's perspectives and work together to achieve the goals of the revolution. The cadre was also naturally a disciplinary role, responsible for identifying and correcting any

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<sup>296</sup> Schmalzer, *Red Revolution, Green Revolution: Scientific Farming in Socialist China*, 4.

deviations from the correct Party line, as well as for promoting the development of socialist consciousness and culture among the workers and experts. The cadre played a similar epistemological role in the national *huanbao* project as it came together at the NCEP. Speeches by leading cadres elevated *huanbao* to the level of the “line”—meaning it would be a fundamental and significant aspect of the political and ideological orientation of the Party going forward. More than that, in the context of the Cultural Revolution it meant *huanbao* was definitional for achieving the revolution and of building socialism.

NCEP organizers invited cadres related to environmental work at the provincial, municipal, and autonomous region committee level and cadres from relevant departments of the State Council. Though the conference itself was already organized under the leadership of central organs, the participation of important central leaders like Hua Guofeng (华国锋), Vice Premier Li Xiannian (李先念), and Yu Qiuli (余秋里), considered the founding father of the Chinese petroleum industry and Chairman of the State Planning Commission from 1970-1980) helped give the *huanbao* project broader political authority and legitimacy. Thousands of cadres gathered in the Great Hall of People on August 19 to listen to these important Party and state leaders deliver their closing remarks.<sup>297</sup>

In their speeches, they repeatedly emphasized the importance of the meeting in the eyes of central leaders. Li Xiannian said the NCEP “is of great significance, and the central government

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<sup>297</sup> Qu and Peng, “Zhongguo Huanjing Baohu Dashi Gaiyao 中国环境保护大事摘要 [Summary of Major Events in Chinese Environmental Protection].”

attaches great importance to it.”<sup>298</sup> Yu Qiuli ended his speech with the same phrase.<sup>299</sup> Hua Guofeng claimed that the sharing of knowledge and experiences at the NCEP would serve as the foundation for a national *huanbao* program:

National policies should encourage and support the transformation of “three wastes” into “three treasures”. This conference was approved by the central government deciding it was necessary to seriously deal with the “three wastes”. The purpose of this 10,000-people meeting is to draw the attention of the whole party and the whole country, first of all, to make achievements in Beijing. After the meeting, we must vigorously promote the issue. Comrade Li Xiannian suggested that the models and speeches at the conference be printed and published. After the meeting, we must conscientiously communicate and grasp them, and require all these cities and industrial enterprises to become household names. We must mobilize the vast number of workers, technicians, and cadres so that everyone will do this.<sup>300</sup>

Aside from ostensibly learning from the reports and speeches by the commune, factory, and scientific representatives, local and central cadres gave their own speeches about the importance

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<sup>298</sup> Li Xiannian 李先念, “Li Xiannian Fuzongli Jianghua 李先念副总理讲话 [Speech by Vice Premier Li Xiannian],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 240–42.

<sup>299</sup> Yu Qiuli 余秋里, “Yu Qiuli Tongzhi Jianghua 余秋里同志讲话 [Speech by Comrade Yu Qiuli],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 246–47.

<sup>300</sup> Hua Guofeng 华国锋, “Hua Guofeng Tongzhi Jianghua 华国锋同志讲话 [Speech by Comrade Hua Guofeng],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 243–45.

of elevating *huanbao* to an issue of the political line and then what that line was, and was not. Hua Guofeng stated strongly that the first matter would be establishing the right political line on *huanbao* before real progress could begin:

The problem [“three wastes” pollution] should be elevated to the line. One thing is a failure to realize it, and the other is outright resistance to it and interference from erroneous ideas. We must correct erroneous ideas, raise awareness, and rely on the masses, and things can be done well. As long as we really pay attention to it ideologically and act according to Chairman Mao’s line, we will have great progress.<sup>301</sup>

Leading cadres indeed spoke at length about the correct political line on environmental issues, dedicating most of their speeches to the topic. Most of the leading cadres’ comments about the correct political line reiterated the points forged in previous essays written by people like Hua Qingyuan during the comprehensive utilization of the industrial “three wastes” mass campaign. The correct political line as articulated by leading central cadre speeches can be distilled down into the following: (1) environmental pollution existed in China; (2) integrationist, self-reliant, and holistic practices like comprehensive utilization and afforestation were the correct practices to eliminate pollution; (3) solutions to environmental problems were technological and scientific in nature, but also required the cooperation of everyone with the masses were at the center.

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<sup>301</sup> Hua, “Hua Guofeng Tonzhi Jianghua 华国锋同志讲话 [Speech by Comrade Hua Guofeng].”

Yu Qiuli warned against any approach that did not center the experience and concerns of the masses by drawing on the accounts of worker-peasant conflict over pollution presented earlier at the conference:

No matter what the problem is, as long as it is clearly explained to the masses and discussed by the masses, there is nothing that cannot be solved. Avoiding contradictions and keeping the masses from knowing will always suffer. One day the crowd will rise up against you. Facts have proved which pollutants endanger people's health, affect agriculture, and endanger the vital interests of the people. If it is not resolved, the factory will not be able to continue. In one factory, the hazards of waste gas were not resolved. During rice harvesting, production had to be suspended for two months, otherwise the farmers were going to rebel. This reaction is correct. There were other enterprises with serious pollution. The masses smashed their glass windows, drove them away, and prohibited them from producing... It seems that our thinking has not been well resolved. Comrade Guofeng said that cleaning up pollution and protecting the environment should be known to every household. We need publicity and education, rely on groups, solve problems, and seize the movement.<sup>302</sup>

Li Xiannian also highlighted how the "three wastes" issue also fundamentally undermined peasant-worker relations and the interests of the masses.

There is a problem of worker-peasant relations here. Comrades engaged in industry, how can they do without views on agriculture, poor and lower-middle peasants, or Chairman Mao's

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<sup>302</sup> Yu, "Yu Qiuli Tongzhi Jianghua 余秋里同志讲话 [Speech by Comrade Yu Qiuli]."



revolutionary line? ...Comrades mentioned the issue of the relationship with the peasants in their speeches. This issue is very important and well raised.<sup>303</sup>

Gu Ming stated categorically once and for all that anyone who believed socialist countries could not produce pollution was wrong and was in violation of the correct line.<sup>304</sup> A common refrain from environmental bureaucrats in the post-Mao period, used to buttress the Dengist regime and their own bureaucratic-legalist-technical approaches to environmental problems, would be that the dominant belief of the Mao period was that socialist countries could not produce pollution at all. This is not to say that those beliefs did not exist in China—Gu is speaking out against them here—but by August 1973 the official Party line fully rebuked this idea.

The ideas associated with the incorrect political line also structured *huanbao*, namely: (1) pollution could not be overcome and was inevitable; (2) population growth and economic development were not inherently the cause of environmental degradation; (3) a laissez-faire and passive attitude to the “three wastes”; (4) any approach that privileged expert or ivory-tower approaches to environmental problem-solving; (5) the belief that public hazards are only products of capitalism and cannot happen in socialist countries; (6) the belief that production cannot be developed alongside the elimination of the “three wastes”, but that one has to choose one or the other.

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<sup>303</sup> Li, “Li Xiannian Fuzongli Jianghua 李先念副总理讲话 [Speech by Vice Premier Li Xiannian].”

<sup>304</sup> Gu, “Yi Lvxiang Wei Gang Gaozhao Huanjing Baohu Wei Guangda Renmin He Zisun Houdai Zaofu -- Gu Ming Tongzhi Zai Quanguo Huanjing Baohu Huiyi Shang de Fa Yan 以路线为纲搞好环境保护 为全国人民和子孙后代造福 -- 顾明同志在全国环境保护会议上的发言 [Taking the Line as the Guiding Principle, We Must Do a Good Job in Environmental Protection for the Benefit of the Vast People and Future Generations – Speech by Gu Ming at the National Conference on Environmental Protection].”

Li Xiannian chastised at length what he said were “wrong points of view” on environmental problems. He first targeted those who had not been paying sufficient attention to “three wastes” problems and comprehensive utilization, attributing it to ignorance more than malice:

The issue of environmental protection has not attracted the attention of most comrades, especially leading comrades. In this “Report on the Situation of the National Conference on Environmental Protection,” the authors criticized several erroneous views. One point of view is: “What factory doesn’t emit smoke? What workshop has no waste liquid?” You criticized this view as, “Either not understanding the harm of ‘three wastes,’ or being indifferent to the health and interests of the people and the waste of national resources.” In my opinion, these people mainly do not recognize the importance of the issue. Some of them are involved in creating the “three wastes”, but do not recognize it. I don’t believe that pollution from “three wastes” is harmful to others, but not to them. The main reason is that they do not recognize the problem.

These phrases “What factory doesn’t emit smoke? What workshop has no waste liquid?” were directly lifted from Hua Qingyuan’s 1971 essay in *Red Flag*. Hua had claimed they were indicators of incorrect thinking about environmental problems: they were defeatist and fatalist. Li Xiannian then used a scatological metaphor to explain the incorrectness of people who claim pollution is inevitable.

Some people say: “We have to discharge waste in production just like we have to shit after eating.” [吃饭总得拉屎，生产总得排污]. It’s true that we have to shit after eating,

but there is always a way to do it, and we can't just shit everywhere! People who hold this view believe that "three wastes" cannot be avoided.

Then Li criticized—again borrowing from earlier essays—the notion that increasing production was more important than dealing with the "three wastes" and so factory leaders were simply too busy with accomplishing the former. Li cited the report of the representative of the Jilin Paper Mill as evidence that implementing comprehensive utilization ultimately *increased* production, not hampered it.

Yes, we are all indeed very busy, but as we can see from the speeches of several comrades just now, have any of them who dealt with the governance of "three wastes" suffered production losses? One comrade just now criticized the view that using "three wastes" as a way to acquire more resources is like "picking sesame seeds." This "sesame seed" is quite substantial! How many "sesame seeds" did the Jilin Paper Mill pick? They recovered 20,000 tons of caustic soda from their pulp waste liquid every year. This is not a small amount, and there are also crude oil, acids, and other chemical products. They create more than 14 million yuan of wealth for the country every year through the recycling and utilization of "three wastes". How could this be considered "picking sesame seeds"? It's obviously more like "picking watermelons"!<sup>305</sup>

This point, made by more than just Li Xiannian, suggest a certain contradiction: Liu Shaoqi and Lin Biao's "production first" attitude and concomitant disregard for public wellbeing were blamed for "three wastes" problems and China's environmental degradation. Yet repeatedly,

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<sup>305</sup> Li, "Li Xiannian Fuzongli Jianghua 李先念副总理讲话 [Speech by Vice Premier Li Xiannian]."

cadres promoted comprehensive utilization of the industrial “three wastes” as the principal *huanbao* practice on the basis that it was actually *more* productive than not doing it. In this sense, “protecting the environment” was seen not as an end in and of itself but as a means to the end of economic production. This meant that environmental solutions had to be evaluated not only in terms of their environmental impact but perhaps even more so in terms of their economic viability and their contribution to the overall goals of socialist construction. And yet, at the same time, the correct political line on environmental issues identified rightists and counterrevolutionaries because of their propensity to promote “production first” policies that ignored environmental issues in favor of increasing production.

Determining the relationship between production and pollution, or sometimes configured as between environmental protection and economic development, was a critical question at the heart not just of *huanbao*, but of the global environmental turn around 1970 more generally. As we saw in chapter three, the PRC delegation at the UNCHE encountered the idea promoted by developed, capitalist countries that environmental pollution was an inevitable consequence of economic development. We see again here through Li’s speech how this newly-realized contradiction structured thinking on the correct political line on environmental problems within China. An article published two months before the NCEP in *People’s Daily*, showed how the relationship between economic development and pollution was translated into Marxist terms, describing it as a “dialectic relationship.”

Chairman Mao taught us: “Marxist philosophy holds that the law of contradiction and unity is the fundamental law of the universe. This law exists universally in nature, human society, and human thought. Contradictory and opposing things unify and struggle with

each other, thus promoting the movement and change of things.” Like all things, the contradiction between economic development and environmental protection is constant and absolute, while unity is temporary and relative. Economic development will bring new environmental protection problems, and as old environmental problems are solved, new ones arise, creating a dialectical relationship between economic development and environmental protection.<sup>306</sup>

*Huanbao* was aimed at achieving this “temporary and relative” unity of the two, through comprehensive utilization or other practices that integrated environment, production, and human health in a holistic way. A September 1974 *People’s Daily* article described the state of unity between the two as follows:

The development of industrial production and the protection of the environment are the unity of opposites. They are not only contradictory but also mutually reinforcing. As long as it is handled well, under certain conditions, “three wastes” pollution can be transformed in a direction that is beneficial to the people. The key lies in how we correctly understand and treat this issue from a dialectical point of view. Fundamentally speaking, protecting and improving the environment means to protect the health of the masses of the people and future generations, so as to protect and promote the development of productive forces.<sup>307</sup>

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<sup>306</sup> “Jingji Fazhan He Huanjing Baohu 经济发展和环境保护 [Economic Development and Environmental Protection],” *Renmin Ribao 人民日报 [People’s Daily]*, June 16, 1973.

<sup>307</sup> “Zhongshi Huajing Baohu Gongzuo 重视环境保护工作 [Emphasize Environmental Protection Work],” *Renmin Ribao 人民日报 [People’s Daily]*, September 17, 1974.

We see here the intellectual foundations of a certain formulation of “sustainability”—a way of managing the externalities of industrialization in the long-term that has come to occupy the desires of the contemporary Chinese Party-state under Xi Jinping.

That a central goal of the NCEP was to establish the right political line and unify environmental thought under Party leadership was also reflected in a mid-conference (August 10) report compiled by the Conference Secretariat. The report claimed that cadres attending the conference were understanding that the “fundamental difference between socialism and capitalism was whether to protect the environment for the benefit of the people or to pollute the environment and harm the people.” To support this accomplishment, they quoted delegates confirming they understood the importance of the conference in establishing the correct political line on environmental problems. A delegate from Heilongjiang pointed out: “It is very necessary for us to emphasize the line, solve the problem of ideological understanding, and fully recognize the importance of environmental protection work from a high level of the line. Without solving the problem of the line and understanding, no matter how much money and good equipment we have, we cannot solve the problem of environmental pollution.” A delegate from Shanghai said: “If we treat environmental protection work as routine work, it will be difficult to push forward. If we recognize it from the perspective of the line, the problem will be solved easily.” A delegate from Jilin perhaps best described how *huanbao* from its very consolidation at the NCEP was as much a political project than a scientific or technical one: “The key to environmental problems is leadership. We learned from the documents in the conference and improved our understanding.

After returning, we also need to learn from the conference's approach, which is to first grasp the correct line and solve the problem of understanding."<sup>308</sup>

*From Liu Shaoqi to Lin Biao / The Coproduction of the Anti-Lin Biao Campaigns and Huanbao*

A secondary theme in cadre speeches is a strong focus on placing *huanbao* within the recent political campaigns against Lin Biao, marking a shift away from Liu Shaoqi as the main capitalist roader that caused environmental problems. The intertwining of environmental problems and public hazards with the broader political campaigns (and vice versa) of the late Mao period has been little studied or known about in Anglophone histories of the late Cultural Revolution. Prior to the August 1973 NCEP Maoist environmental theorists blamed Liu Shaoqi as the main capitalist roader and counter-revolutionary revisionist responsible for China's environmental problems. While once Mao's heir apparent, Lin Biao was also a political enemy following his famous failed coup and death in a plane crash in September 1971. However, Lin Biao's association with China's environmental problems was an outgrowth of the larger political winds that culminated in the Criticize Lin, Criticize Confucius campaign (批林批孔) that began in 1973. During a May-June 1972 conference in Beijing aimed at criticizing Lin Biao, Zhou Enlai announced that "after Liu Shaoqi, it was [Lin] who took the lead in opposing the Chairman." One of the conclusions from the conference was that "at every stage in the history of China's revolution, at every crucial stage in the two-line struggle within the party, Lin Biao

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<sup>308</sup> Conference Secretariat 会议秘书处, "Cong Luxianshang Tigao Dui Huanjing Baohu Gongzuo 从路线上提高对环境保护工作的认识 [Improve the Understanding of Environmental Protection Work from the Perspective of the Line]," in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China's First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 280–81.

always stood on the side of the erroneous line, opposed Chairman Mao's revolutionary line, resisted Chairman Mao's strategic policies, and more than once plotted to usurp Chairman Mao's leadership."

In the summer of 1973, an investigation of Lin's home uncovered evidence that he was fond of Confucian philosophical and ethical principles, further confirming Mao's earlier suspicion that Lin was not a real Marxist-Leninist. By linking Lin Biao with Confucius, Confucianism became highly politicized and the two were ultimately linked together in the Criticize Lin, Criticize Confucius campaign (批林批孔).<sup>309</sup> However, planning documents for the NCEP, the deceased Lin Biao was already set up as the main political target responsible for environmental problems by January 1973.<sup>310</sup>

The NCEP secretariat's briefing from the opening day of the conference, August 5, explicitly connected environmental problems to the political campaign against Lin Biao.

The comrades present at the meeting first carefully studied Chairman Mao and the Party Central Committee's instructions on criticizing Lin Biao and rectifying the political winds [批林整风的指示]. Integrating it with the reality of environmental protection work, they launched a major criticism of Lin Biao's revisionist line. Everyone agrees that whether we can do a good job in environmental protection, in the final analysis, determines what social system we will follow, what path we will take, and what line we will implement...The

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<sup>309</sup> Roderick Macfarquhar and Michael Schoenhals, *Mao's Last Revolution* (Harvard University Press, 2008), 345-346; 367.

<sup>310</sup> National Planning Commission 国家计划革命委员会, "Guanyu Quanguo Huanjing Baohu Huiyi Neirong, Kaifa He Qingshi de Ji Ge Wenti" 关于全国环境保护会议内容、开法和请示的几个问题 [Several Questions about the Content, Methods, and Request for Instructions of the National Environmental Protection Conference]."



criminal purpose of Lin Biao's pursuit of the revisionist line was to fundamentally change the party's basic line and policies throughout the entire historical period of socialism, the dictatorship of the proletariat, and restore capitalism. This is the essence of the extreme right of Lin Biao's line. If their counter-revolutionary conspiracy succeeds, the country changes color, and the people suffer, how can there be any talk of protecting the environment and benefiting the people! The representatives of the meeting angrily exposed and criticized Lin Biao's group's crimes of resisting Chairman Mao's instructions on comprehensive utilization and undermining environmental protection work.

That environmental problems were not merely technical or scientific, but also deeply political and ideological, was a conclusion strengthened from the Party's encounter with the global environmental regime at the UNCHE. At the NCEP, this conclusion was translated to the realm of domestic politics, fixing *huanbao* as an essential part of fulfilling Mao's revolutionary line.

The August 5 conference briefing also cited a conference speaker who recounted how Lin Biao's friends and followers had personally contributed to environmental problems.

A comrade at the general assembly said in their speech that Lin Biao's follower, Qiu Huizuo [邱会作], completely ignored the protection of the environment during the construction of the No. 2348 Chemical Plant. He did not comprehensively utilize the "three wastes" generated during production, blindly pursued progress, faked production, and used imported products to pass them off as his own before actually producing anything. This deceitful behavior deceived the central government. The engineering quality of the factory was poor, the equipment installation was rough, and there were serious leaks and blockages. This

resulted in a large amount of toxic wastewater and gas being discharged into rivers and the sky. In December of last year alone, two sewage pipes ruptured, and toxic sewage poured into the 10,000-acre Songyang Lake. Now the phenol content of the lake water exceeds the national standard by 300 times. 860,000 fish raised in nearby fish farms died within three days. The chlorine gas emitted by the factory caused the surrounding forests to wither and the fields to turn yellow.<sup>311</sup>

Of course, most factories in the PRC were not practicing comprehensive utilization, as was apparent in the investigation of the Guanting reservoir incident. The factories responsible for the upstream poisoning of the reservoir were not charged with being supporters of Lin Biao, or more likely in 1971, Liu Shaoqi. In this sense, one way in which the Party responded to the development of *huanbao* was by linking environmental problems to specific personages, using them as evidence of political correctness or political wrongness. Ironically, this is precisely what happened after the transition to Deng Xiaoping—Dengist reformers linked Mao himself to China’s environmental problems, serving to boost the Dengist program and further delegitimize Maoist radicalism. “The environment” has indeed always been political in the PRC.

The NCEP also just barely predated the formal beginnings of the Criticize Lin, Criticize Confucius campaign that followed the 10th Central Committee of the Chinese Communist Party—the first plenary session of which was in late August 1973, just a matter of days after the NCEP. A defining characteristic of *huanbao* at this formative stage was its mutual intertwinement with the broader political atmosphere: environmental problems were used as

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<sup>311</sup> Conference Secretariat 会议秘书处, “Yi Pili Zhengfeng Wei Gang, Zuo Hao Huanjing Baohu Gongzuo 以批林整风为纲, 做好环境保护工作 [Taking Criticize Lin Biao and Rectification as the Main Theme, Do a Good Job in Environmental Protection Work].”

ammunition in Maoist political campaigns and, likewise, political campaigns influenced theorizations on the nature of environmental problems. They were in, a word, coproduced.

The September 1974 issue of *Red Flag*, for example, ran the article “Persist in revolutionary unity and deepen the criticism of Lin Biao and Confucius” in the place just before the first article in *Red Flag* ever explicitly dedicated to “environmental protection”: “Pay attention to environmental protection work” (Hua Qingyuan’s September 1971 article was framed as about comprehensive utilization of the “three wastes”). That article placed *huanbao* as part of the Criticize Lin, Criticize Confucius campaign, proclaiming “Under the promotion of the Criticize Lin Biao and Confucius Movement, leaders at all levels put this work [*huanbao*] on the agenda, carefully plan, extensively mobilize the masses, and carry out comprehensive utilization and other governance measures.”

The January 1974 issue of the Beijing-based popular science magazine *Environmental Protection* [*Huanjing Baohu*]*—*which began publication in 1973*—*offers another example of how *huanbao* and the Criticize Lin, Criticize Confucius campaign were intellectually integrated. The journal published an article titled “Criticize Lin Biao and Confucius, Take the Road of Self-Reliance and Development of Environmental Science” by the Guiyang-based Institute of Geochemistry*—*the same institute that the geochemist Liu Dongsheng worked at. The authors equated the erroneous privileging of expert-produced scientific knowledge with Confucius’ “theory of genius”. Confucius’ “theory of genius” divided people into different categories based on their innate abilities, claiming that some people were born with exceptional intelligence and talent and were “superior men” who had the natural legitimacy to rule. Others with low

intelligence were only fit to take orders from such “genius” men.<sup>312</sup> During the Criticize Lin, Criticize Confucius Campaign, many accused Lin Biao of subscribing to this belief about himself and his destiny to replace Mao. As put in a 1975 issue of *The Peking Review*, “Taking over from Confucius, Lin Piao espoused the ‘genius’ theory as his theoretical program for usurping Party and state power and restoring capitalism. He boasted about the ‘particularly brilliant’ head he was given by his ‘parents’ and dressed himself up as a ‘genius’ ‘born with knowledge.’ But the fact was, he was a big Party tyrant and warlord without any learning.”<sup>313</sup> The authors from the Institute of Geochemistry drew on this critique of Lin Biao to describe why expert-based environmental science was similarly erroneous.

In the development of environmental science, there is always a struggle between two lines: whether to learn humbly from the people or follow the path of experts; whether to go deep into factories and villages or conduct research in closed laboratories; whether to summarize experience from the extensive and in-depth practice in our country or to blindly follow foreign work methods. We have found through more than six years of practical work in environmental geology that only by adhering to Chairman Mao's revolutionary line, criticizing the idealist and reactionary views of “genius theory” such as Confucius and Lin Biao's “superior and inferior intellects” and “innate knowledge”, humbly learning from

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<sup>312</sup> Niu Yu-Hsien, “Criticize Thoroughly the ‘Theory of Genius’ of Confucius and Mencius,” *Chinese Education*, April 1, 1974.

<sup>313</sup> Workers’ Theoretical Study Group of the No. 2 Workshop of the Shanghai No. 5 Steel Plant, “Criticism of Selected Passages from ‘Analects’--A Confucian Classic,” *Peking Review*, no. 16 (April 18, 1975): 9.

workers, peasants and soldiers, and working hard, can we rapidly and solidly develop environmental science with Chinese characteristics [我国特色的环境科学].<sup>314</sup>

Beijing's own post-NCEP conference on *huanbao* involved spreading awareness of environmental protection, criticizing Lin and Confucius, discussion of successful comprehensive utilization projects, and planning for the future. A summary of the Beijing conference framed the protecting of Beijing's environment as intimately linked with the ideological campaign against Lin Biao and Confucius:

In order to build the capital into a socialist clean city, it is necessary to carry out the campaign to criticize Lin Biao and Confucius in depth based on the Party's basic line, effectively strengthen leadership, and conscientiously implement comprehensive planning, rational layout, comprehensive utilization, turning harm into benefit, and relying on the masses.<sup>315</sup>

*Huanbao*—or as the Guiyang geochemists called it, “environmental science with Chinese characteristics”—needed a target like Liu Shaoqi or Lin Biao. A counter-revolutionary class enemy was a *necessary* component for a Maoist theory of environmentalism that privileged political and social causes of environmental problems. In that sense, what was coincidental was only whether recent political winds meant it was Liu Shaoqi or Lin Biao—or someone else. If

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<sup>314</sup> Environmental Geology Laboratory at the Guiyang Institute of Geochemistry, “Pi Lin Pi Kong, Zou Ziligengsheng Fazhan Huanjing Kexue de Daolu 批林批孔，走自力更生发展环境科学的道路 [Criticize Lin and Confucius, Pursue the Path of Self-Reliance and Development of Environmental Science],” *Huanjing Baohu* 环境保护 [Environmental Protection], no. 1 (January 1974): 3–6.

<sup>315</sup> Benkan bianweibu 本刊编辑部 [The editorial department of this magazine], “Wei Wancheng 1974 Nian de Huanjing Baohu Renwu Er Nvli Fendou 为完成 1974 年的环境保护任务而努力奋斗 [Strive Hard to Complete the Task of Environmental Protection in 1974].”

there were always social and political causes of environmental problems—as was evidenced by how rampant they were in capitalist countries—then there also had to be a social and political cause for the environmental problems in China. Lin Biao and Liu Shaoqi, and the subversive capitalism always thwarting Mao’s goals that they represented, served this purpose, despite themselves and their contemporaries having little understanding of ecology, the nature of pollution, the biosphere, etc. This is not the same, however, as believing that socialist countries cannot have environmental problems—as people like Qu Geping would later charge Maoists as believing. Rather, it is better understood as another entry in the long-running tautology that characterized Maoist diagnoses of its own failures: there was always some counter-revolutionary capitalist in the way.

Lastly, some scholars have pointed out that the amorphous Criticize Lin, Criticize Confucius campaign also at times indirectly targeted Zhou Enlai.<sup>316</sup> Zhou Enlai’s association with fostering awareness of environmental issues—evidenced in the constant invocation of his name in contemporaneous comprehensive utilization reports, later Chinese histories, and patronage of the NCEP preparations—poses interesting questions about how that association influenced *huanbao* throughout the Criticize Lin, Criticize Confucius campaign. This is hard to know with any certainty according to available evidence, but Zhou himself was little mentioned at the NCEP, did not appear to have spoken at it, and his association with environmentalism does seem to reappear only after the Mao-Hua-Deng transition.

*China’s “Correct” Environmental Past and its Future*

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<sup>316</sup> Macfarquhar and Schoenhals, *Mao’s Last Revolution*, 370.

The discovery of the extent of China's degraded environment by the time of the NCEP, and the Party's acceptance of it as a scientific and political fact necessarily invoked a referendum on the past. The environment, and human treatment of it, was now a discrete subject which had its own history—China, in other words, had an environmental history. From the perspective of 1973, what was it? To determine that, central cadre leadership at the NCEP had to walk a tight ideological line. On one side, was a familiar tautology: contemporary political exigencies meant that any official narrative could not directly critique Mao's past decisions or ideas. On the other side, was that any narrative naturally needed to account for the fact that China's environment did indeed have a raft of problems, and that China was only different from other industrial societies in their social and political tools to solve the problem.

As covered previously, narratives crafted during the Zhou-led campaign for comprehensive utilization of the industrial "three wastes" tread this line partly by blaming the existence of shadowy capitalist roaders that followed Liu Shaoqi and (more recently) Lin Biao in ignoring pollution and public welfare. The other main narrative revolved around comparing China's pre-revolutionary and post-revolutionary environments, centering 1949 as China's real environmental turning point. From this perspective, the development of *huanbao* in 1971-1973 was just an evolutionary step in environmental principles that Mao had established earlier on. In cities with pre-revolutionary industrial pasts like Shanghai, this was easy. It was little more than a matter of stating that pollution came from pre-revolutionary factories and urban planning by capitalists and imperialists. Some comprehensive utilization reports from such cities had already done this, Gu Ming echoed in his August 7 speech—which was by far the longest and most comprehensive of speeches at the NCEP:

Before liberation, large and medium-sized cities were places where imperialism and bureaucratic capitalism brutally exploited the people. In order to grab high profits, regardless of the life and death of the people, they set up many environmentally harmful factories in dense residential areas, arbitrarily emitting harmful substances, and the living conditions of the majority of working people are very bad. After liberation, while carrying out the socialist revolution and socialist construction, starting from the development of production and the protection of people's health, a unified plan was made for urban construction and industrial layout, and the original.

Gu proclaimed that the correct recounting of China's environmental past ultimately turned on these kinds of pre and post-1949 comparisons, saying, "Comparing our country's current environmental situation with that before liberation will make us more aware of its huge change; at the same time, it will also make us further understand the truth that the fundamental factor that determines whether the environment is good or bad is the social system and the people." The deep linkages between environmental problems and public health forged before and during the NCEP allowed Gu to link past mass patriotic health campaigns as part of *huanbao*. Gu underlined the overall significant improvement in hygiene and peoples' health since 1949, demonstrating once again that it was humans, not the "environment" or nature itself, that was the main subject to be protected in *huanbao*. In support, he cited how important past campaigns like the Great Leap Forward's "Eliminate the Four Pests" ("除四害"), which was aimed at eradicating pests responsible for transmitting disease to disastrous ecological effect, had been institutionalized and regularized. The eradication of natural vectors of disease was, from this perspective, a kind of—as cadres put it at the NCEP—"improving the environment" (改善环境).



The irony here is that the “Eliminate the Four Pests” campaign is often feted by those critical of Maoist treatment of the environment as evidence of how Mao’s radical utopianism often upset China’s ecological balance and caused environmental destruction: the mass killing of the Eurasian tree sparrow (one of the original four pests) simply led to more insects (that the sparrows naturally ate), causing even greater ecological problems.

Gu even went so far as to include labor insurance and the collective welfare of rural people’s communes as evidence of China’s “improved environmental situation” after 1949. Peculiar or non-sequitur as this may seem, it actually underlines once again the extent to which *huanbao* was ultimately targeted at what Gu called the “people’s living environment” (人民的生存环境). Gu summarized the Party’s stewardship over the improvement in the “people’s living environment” since 1949 as follows:

In old China, under the cruel imperialist aggression, plunder, and enslavement, the economy was extremely poor and backward, and the people were struggling with starvation and death. There was no way to maintain and improve the environment, so the environment deteriorated day by day. Often, an epidemic of an infectious disease kills tens of thousands of people; a major flood and drought displaces millions of people, destroys their families, and even kills millions of people... Compared with before liberation, my country’s population has increased by more than 200 million, and the total industrial output value has increased by more than 20 times. However, the people’s living environment has still not deteriorated, but has even been greatly improved. This iron fact

strongly refutes the reactionary fallacies of “development causes pollution” and “population growth causes pollution.”<sup>317</sup>

Recall that these latter two “reactionary fallacies” were two of the major points of contention that the PRC delegation confronted at the UNCHE. As part of that delegation, Gu Ming was clearly influenced by the experience, evidencing again how the intellectual development of Chinese environmentalism was shaped by global encounters.

It was based on this capacious, people-centered definition of “environmental protection” that the common refrain “Chairman Mao and the Party Central Committee have always attached great importance to environmental protection” was made. This was of course despite the fact that the term “environmental protection” was itself new in 1973. I can find no evidence of Mao ever having spoken the term *huanjing baohu* before 1973. Still, by associating the Party’s past historical activities with this new term, Maoists could frame new developments as extensions of the old. Likewise, this meant also that new failures—the new awareness of environmental problems—was due to a collective failure to sufficiently adhere to Mao’s already-articulated ideas about “putting people first” or “solving problems comprehensively”. Mao’s tautological correctness maintained his prestige, which in turn was a prerequisite to making environmental problems politically actionable in the context of the Cultural Revolution.

After the NCEP, the National Planning Commission sent a report to the State Council on August 29 broadly summarizing the conference’s content and conclusions. In spite of this

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<sup>317</sup> Gu, “Yi Lvxiian Wei Gang Gaohao Huanjing Baohu Wei Guangda Renmin He Zisun Houdai Zaofu -- Gu Ming Tongzhi Zai Quanguo Huanjing Baohu Huiyi Shang de Fa Yan 以路线为纲搞好环境保护 为中国人民和子孙后代造福 -- 顾明同志在全国环境保护会议上的发言 [Taking the Line as the Guiding Principle, We Must Do a Good Job in Environmental Protection for the Benefit of the Vast People and Future Generations – Speech by Gu Ming at the National Conference on Environmental Protection].”

tendency to shift a significant amount of blame for environmental problems onto pre-1949 actors, there was also admission that new environmental problems had emerged alongside the material achievements of Mao's rule. For example, this August 29 report to the State Council countenanced progress under Mao, while still recognizing some mistakes had been made.

With the improvement of living conditions and the development of health care, people's health has been greatly improved. However, some new problems have also emerged in environmental protection. This is mainly because in the development of industry, there are more and more harmful wastewater, waste gas and waste residue, which pollute the natural environment... In some areas, improper reclamation of grasslands, reclamation of lakes and logging of forests have also damaged the natural environment. All of these have adverse effects on the health of the people, the development of agriculture, forestry and animal husbandry, and the construction of industries and transportation, and have caused serious harm in a few areas.<sup>318</sup>

The introduction to a 1974 volume of speeches and reports from the NCEP reproduced this narrative, saying:

Improper reclamation of grasslands, reclamation of lakes, and logging of forests in some areas also have adverse effects on environmental protection. In the past, in the industrial production and construction, there was insufficient understanding of the hazards caused by the “three wastes”, lack of experience, and poor implementation of the instructions of

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<sup>318</sup> National Planning Commission 国家计划委员会, “Guojia Jihua Weiyuanhui Guanyu Quanguo Huanjing Baohu Huiyi Qingkuang de Baogao 国家计划委员会关于全国环境保护会议情况的报告 [Report on the National Conference on Environmental Protection by the National Planning Commission].”

Chairman Mao and the Party Central Committee on comprehensive utilization and prevention and control of “three wastes” pollution.<sup>319</sup>

These charges are common in both Sinophone and Anglophone literature about the damage Mao’s policies caused the environment. The phrase “improper reclamation of grasslands” is most certainly a reference to the side-effects of the Mao period’s “Grain-first campaigns” which called for people to turn pastureland into agricultural land in a desperate bid to produce more grain to stave off famine. The dominant discourse around these campaigns is that they led to the deaths of huge amounts of livestock, land degradation, and desertification—though some recent scholarship has sought to complicate that story.<sup>320</sup> Judith Shapiro’s influential *Mao’s War against Nature* focused on these topics as well, dedicating a chapter each to the reclamation of lakes and to deforestation.<sup>321</sup> This self-critique has late Mao-era origins.

### Part 3

#### VIII. *Huanbao* Storytelling

The immediate accomplishment of the NCEP was to establish *huanbao* as a field of integrated scientific disciplines, as a political structure for integrating different standpoint epistemologies regarding managing the human-environment relationship, and as a connected set of holistic production practices like comprehensive utilization and afforestation. By connecting

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<sup>319</sup> Quanguo huanjing baohu huiyi mishuchu bian 全国环境保护会议秘书处编 [the Secretariat of the National Environmental Protection Conference], “Qianyan 前言 [Preface],” in *Huanjing Baohu Jingyan Xuanbian 环境保护经验选编 [Selected Compilation of Environmental Protection Experiences]* (Renmin chubanshe, 1973), 1–2.

<sup>320</sup> Peter Ho, “Mao’s War against Nature? The Environmental Impact of the Grain-First Campaign in China,” *The China Journal*, no. 50 (July 2003): 37–59.

<sup>321</sup> Judith Shapiro, *Mao’s War Against Nature: Politics and the Environment in Revolutionary China* (Cambridge University Press, 2001).

all these things and giving their unification the name *huanbao*, the NCEP marked the beginning of a more comprehensive nationwide project to manage the human-nature relationship in China beyond the Zhou-instigated comprehensive utilization campaigns of 1971-1972. After the NCEP was over, there was a flurry of official activity around *huanbao*. Provincial and municipal representatives immediately reported to their provincial and municipal committees and organized provincial *huanbao* conferences to “convey the spirit of the National Environmental Protection Conference and plan future work.” By October 1973, Ningxia, Jiangxi, Hubei, and Yunnan had already held conferences, soon to be followed by Jilin, Heilongjiang, Shandong, Henan, Hunan, and Guangdong. A range of ministries began their own environmental protection projects. Water source protection groups were established for a variety of river basins.<sup>322</sup> Changchun was held up as an ideal example of how deeply environmental protection work should penetrate society. From September 7-12, 1973 Changchun’s leaders held meetings at the county, district, bureau, and factory levels, and enlisted scientific research units and universities to share knowledge, exchange experiences, and plan for the future. Altogether, Changchun’s authorities estimated hundreds of thousands of people had attended *huanbao* meetings.<sup>323</sup>

In their after-conference report to the State Council, the National Planning Committee also wrote that “environmental protection should be widely publicized to attract the attention of the

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<sup>322</sup> National Planning Commission 国家计划委员, “Guojia Jihua Weiyuanhui Guanyu Guanche Quanguo Huanjing Baohu Huiyi Qingkuang de Jianbao 国家计划委员会关于贯彻 全国环境保护会议情况的简报 [National Planning Commission’s Briefing on the Implementation of the National Environmental Protection Conference],” in *Huanjing Juexing Renlei Huanjing Huiyi He Zhongguo Di Yi Ci Huanjing Baohu Huiyi 环境觉醒: 人类环境会议和中国第一次环境保护会议 [Environmental Awakening: Conference on the Human Environment and China’s First Conference on Environmental Protection]*, ed. Qu Geping 曲格平 and Peng Jinxin 近新彭 (Zhongguo huanjing kexue chubanshe, 2010), 310–11.

<sup>323</sup> National Planning Commission 国家计划委员, “Guojia Jihua Weiyuanhui Guanyu Guanche Quanguo Huanjing Baohu Huiyi Qingkuang de Jianbao 国家计划委员会关于贯彻 全国环境保护会议情况的简报 [National Planning Commission’s Briefing on the Implementation of the National Environmental Protection Conference].”

entire Party and the people of the country.”<sup>324</sup> Hua Guofeng said at the NCEP, “that cleaning up pollution and protecting the environment should be known to every household. We need publicity and education.”<sup>325</sup> The popular scientific magazine *Environmental Protection* [EP] was one manifestation of post-conference *huanbao* propaganda movement. EP in 1974 was published by the Beijing Environmental Protection Science Research Institute (北京市环境保护科学研究所), though it published articles from a variety of people from a variety of places alongside the expected Beijing-focused ones. The magazine offers a useful case study exemplifying how different actors engaged with *huanbao* discourse following the NCEP, expanding its remit and honing what it meant to *baohu* [protect] *huanjing* [the environment].

EP was an official Party-state publication and so was of course beholden to censorship and the official Party line. No articles challenged the recently begun Criticize Lin, Criticize Confucius campaign, for example, and neither did the magazine publish articles that otherwise contradicted the correct political line of *huanbao* set at the NCEP. But there was still room for intellectual activity within those boundaries. As a case in point, available reports and speeches from the NCEP clearly defined *huanbao* as an interdisciplinary scientific field, highlighting that different scientific disciplines were connected to one another through the environment—and naming a few—but it gave little in the way of detail. Environmental science terms that were already being translated to Chinese prior to 1973 like “ecology” and “biosphere” were hardly mentioned at all. This was even the case in the afforestation reports by peasant communes that

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<sup>324</sup> National Planning Commission 国家计划委员会, “Guojia Jihua Weiyuanhui Guanyu Quanguo Huanjing Baohu Huiyi Qingkuang de Baogao 国家计划委员会关于全国环境保护会议情况的报告 [Report on the National Conference on Environmental Protection by the National Planning Commission].”

<sup>325</sup> Yu, “Yu Qiuli Tongzhi Jianghua 余秋里同志讲话 [Speech by Comrade Yu Qiuli].”

had essentially recreated the concept of ecological engineering through their talk of “combining biology and engineering” to create self-sustaining, environmentally-stable, integrated agricultural production systems.<sup>326</sup> On one hand, the NCEP was just not that kind of scientific conference. On the other, these scientific terms and concepts that came to be associated with environmental science were still new and developing (and not just in China). Magazines like *EP* did a lot of the filling in of the lines.

The scope of manuscripts that the magazine would accept showed how the popular dissemination of expert and translated foreign knowledge on environmental sciences as well as the sharing of experiences of people from different disciplines helped to give shape and meaning to *huanbao* as a cutting edge, inchoate interdisciplinary field of knowledge. *EP* accepted 6 types of manuscripts from readers:

1. Introductions and professional lectures of relevant disciplines in the field of environmental protection.
2. Scientific research results and papers on environmental protection.
3. Advanced experience in environmental protection and new technologies in the treatment of the “three wastes.”
4. Academic activities and information on environmental protection science at home and abroad.
5. Introduction to environmental quality testing technology.

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<sup>326</sup> Shanxi hequxian xunzhen gongshe quyu dadui 山西河曲县巡镇公社曲峪大队 [Quyu Brigade of Xuntian Commune, Hequ County, Shanxi], “Zhishu Zaolin Shancun Ju Bian 植树造林 山村巨变 [Afforestation Can Bring Huge Changes to Mountain Villages].”

## 6. Book reviews.<sup>327</sup>

The seventh type of published article was political commentaries sometimes related, sometimes not related, to *huanbao*. The first issue of 1974, for example, republished an article from the *The People's Daily* about the importance of Criticizing Lin Biao and Confucius. The call for manuscripts dedicated to explaining testing technology should not overlooked—we can see from it how “testing” of China’s environmental landscape as a practice and as a technology was central to *huanbao* and science’s place in it. This novel notion that China’s entire environment needed to comprehensively monitored and scrutinized was one of the lasting legacies of the intellectual developments of this period that still orders Chinese environmentalism today.

Though *EP* began publication in 1973, it appears to have been essentially rebooted following the NCEP. The first issue of 1974 had a particular kind of editorial preface called a *fakan-ci* (发刊词) that is typically printed alongside the first issue of a periodical or magazine.

The purpose of the *fakan-ci* is to introduce the publication, its goals, its editorial policies, and to set the tone for the content that follows. The *fakan-ci* reiterated the main tenets of the *huanbao* project as it was conceived at the NCEP. The editorial board described *huanbao* as a project mostly about managing the environment for the sake of public health, social harmony, and the production struggle, writing that *huanjing baohu* “is a major matter related to the protection of people’s health and the benefit of future generations, to the consolidation of the worker-peasant alliance, and to the development of socialist production in a faster, better and more economical way.” They framed environmental problems optimistically, stating that capitalist countries were

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<sup>327</sup> Benkan bianweibu 本刊编辑部 [The editorial department of this magazine], “Huanjing Baohu Zhenggao Qishi 环境保护征稿启事 [Environmental Protection Call for Papers],” *Huanjing Baohu 环境保护* [Environmental Protection], no. 1 (1974): 41.



incapable of handling them, but that China could so long as people adhered to the correct political line, mobilized the masses, and practiced comprehensive utilization, turning harm into benefit, and comprehensive planning. The editors described awareness of the relationship between industrial development and environmental problems as a “new thing”.

The editor’s described *EP* as a popular magazine meant to be consumed by a variety of people whose work was relevant to *huanbao*, not just experts or scientists. They sought to combine different kinds of epistemological standpoints vis a vis *huanbao* that would make the project truly revolutionary. The same types of people who were invited to the NCEP were invited to contribute to *EP*:

We sincerely hope that comrades from relevant departments, factories, mines, enterprises, scientific research units, and colleges and universities will support this journal, provide valuable opinions at any time, and write articles for it, so as to jointly run it well.<sup>328</sup>

In their call for papers, the editors further underlined the class politics of environmental scientific research and the way in which environmental scientific knowledge could be disseminated.

*Environmental Protection* is a scientific popularization publication mainly aimed at workers, peasants, and soldiers in order to publicize the Party’s principles and policies on environmental protection, to popularize scientific knowledge of environmental protection, and to conduct academic discussions. In accordance with Chairman Mao’s teaching that “our newspapers must be run by everyone, by the masses of the people, by

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<sup>328</sup> Benkan bianweibu本刊编辑部 [The editorial department of this magazine], “Fakanci 发刊词 [Editorial Foreword],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (1974): 1.

the whole Party, and not by a few people behind closed doors,” we hope that relevant units and comrades engaged in environmental protection work will vigorously support and contribute to the publication, and provide valuable opinions at any time to make this publication better.

As Schmalzer observed in her study of the Chinese paleoanthropology journal *Fossils*, the “late Cultural Revolution (1971-1978)...offered new opportunities for ‘mass science’ to flourish” whereas previously “educating the masses took precedence over relying on them.” She observed furthermore that the rhetoric of the period trumpeted that...science was best practiced under the guidance of the laboring masses of ‘workers, peasants, and soldiers.’”<sup>329</sup> We have already seen from repeated statements at the NCEP that this attitude toward scientific knowledge production also provided the context in which *huanbao* developed. What did this look like in practice?

*“It’s a new topic that we haven’t encountered before, what should we do?”*

The aforementioned 1974 *EP* article from the Environmental Geology Laboratory (环境地质试验室) at the Guiyang-based Institute of Geochemistry titled “Criticize Lin Biao and Confucius, Take the Road of Self-reliance and Development Environmental Science” [批林批孔, 走自力更生发展环境科学的道路] provides an especially useful example. Though co-written by several geochemists, the article is not a scientific study or report. It is a personal, autobiographical recollection of how a particular group of geochemists developed an awareness

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<sup>329</sup> Sigrid Schmalzer, *The People’s Peking Man: Popular Science and Human Identity in Twentieth-Century China* (University of Chicago Press, 2009), 139-140.

of the complex, interconnected relationship between the environment, human health, and production after being sent down to the countryside in Heilongjiang. The story touches on topics mentioned already like beliefs about the class nature of knowledge, how scientific experts should learn from the practical experiences of the masses, and how different scientific disciplines got caught up in *huanbao*'s intellectual webbing. It also offers a surprisingly self-reflective, almost intimate, retelling of the intellectual journey through which they came to know about and to do *huanbao* from their position as youthful geochemists sent down to the countryside.

Their story begins in the spring of 1968, when they went to Heilongjiang province in northeastern China to conduct geological survey work. The rural area they went to was well-known as afflicted with the Keshan disease [克山病], which they described as a cardiomyopathy with unknown causes. The disease onset is rapid, and people typically die quickly. Some villages near where they conducted geological survey work had been totally abandoned due to the harm caused by the disease. As geologists, they were quickly struck by the strict regionalism of the disease: it would be rampant in one area, while a neighboring area was practically untouched, with no transmission between the two. Locals referred to it as a “water and soil disease” [水土病] caused by poor water and soil conditions—another intriguing clue for our young geologists. Because of this, apparently locals themselves knew that geologists might have something to say about their problems, imploring them back in 1964 to send someone to do research, which the Institute of Geochemistry denied. They then reframed this incident in their memory, claiming that it must have been because their minds were blocked by the “revisionist research line” that did not care about the interests of the masses or trust their knowledge. It was only until the Cultural Revolution and when they re-read Mao's sayings that they remembered that the

problems of the masses are the fundamental problems. As a result, they returned to the origins of the Keshan disease in Heilongjiang. The principle of “mass science” during the Cultural Revolution, in other words, recontextualized their memories. According to this principle, the masses had the capability to understand scientific principles and to contribute to scientific discovery, especially when the issues at hand directly affected their lives. The locals’ understanding of the disease as a “water and soil disease” and their call for the help of geologists, clearly reflected this belief. The geologists’ latent realization of this, and their subsequent acknowledgement of the need to learn from the masses, represents a clear shift in their mindset from the top-down model of scientific expertise.

The geologists noted furthermore that at the time “no one had ever worked on the new frontier field of the relationship between the environment and human health,” and they had no theories or methods to understand the task before them. “It’s a new topic that we haven’t encountered before, what should we do?” they asked themselves. But, they knew that Mao’s teachings emphasized learning from the masses. And so that is what they did. They went from village to village holding discussion meetings with villagers, asking them about their understanding of the disease and its origins. They learned two things: people in mountainous areas with severe soil erosion and “soft” water with low mineralization were affected by the disease far more than people in plain areas with high mineralization water. “Before we went deep into the people’s lives,” they wrote, “it was hard to imagine a relationship between heart disease and geological conditions.” Their subsequent chemical tests confirmed that it was indeed linked to differences in water and soil between affected and unaffected areas, even though the precise mechanism remained unknown.

Later that year they met a blacksmith at a commune in Inner Mongolia who claimed to have found a way to treat the Keshan disease, which he himself had been afflicted with before curing himself. He did using brine (卤水). They analyzed the chemical composition of the concoction the blacksmith made, finding that it contained 30 kinds of trace elements that were all missing in the drinking water and soil of Keshan afflicted areas. After conducting large-scale clinical trials, they discovered that the brine had positive effects. “This fact greatly educated us, they wrote, “and made us deeply realize that those who truly understand Keshan disease are the vast number of poor peasants who have been fighting against Keshan disease for generations, and the valuable experience they have gained through exchanging their lives reflects the objective laws of Keshan disease.” Moreover, their studies proved that “trace elements widely present in nature have a significant impact on human health.” This was a revelation to them, indicating that there was a “new scientific field” that could greatly impact human life—*huanjing baohu*. Importantly, they noted, this would not have been possible “without the Great Proletarian Cultural Revolution and without the combination of intellectuals and the working masses.” In this way, they viewed *huanbao* as a revolutionary science that emerged *from* the Cultural Revolution.

Later, in 1972 they were sent to investigate the pollution of a reservoir, probably following the Guanting Reservoir incident. They were confused and reticent about this “new topic” of *huanjing baohu*. Once again, they turned to the masses and learned about conflicts between peasants and workers over wastewater dumping—helping them make sense of and give meaning to *huanbao*. They learned, in other words, how their new objects of inquiry “the factory, sewage, and pesticides”—interacted with their old objects of inquiry: “mountains, rivers, and streams.” The

masses already knew, or intuited, from their daily experiences the ways in which the environment impinged on the spheres of human health and production, and vice versa.

Once they learned about the environmental factors behind the Keshan disease and the impacts of the “three wastes” on farming—their “thinking underwent a leap, and a more comprehensive environmental concept began to take shape.” Their story from this perspective is retelling of an epiphanic moment wherein they realized the complex interconnectedness of the environment and human health—what they called a moment of “inspiration” gained from working deeply with the masses.

Through the publication and consumption of these kinds of “aha!” stories, *huanbao* took on a patina as an *especially* revolutionary and liberatory field of knowledge that was more fully in line with the revolutionary ethic of the Cultural Revolution than preexisting scientific disciplines. Indeed, these young geochemists began their *huanbao* story not in 1973 as if it were a reaction to the NCEP or global scientific trends, but instead in 1968, at the height of Cultural Revolution. When some people told them in 1968 to stop wasting their time investigating the amorphous etiology of the Keshan disease, they instead followed Mao’s ideas and teachings, learned from the masses, and fought against reactionary conventional attitudes toward the narrow disciplines of science in order to eventually come to new knowledge about the relationship between nature and human health.

By repeatedly describing how engaging in *huanbao* thinking involved “daring to break through the shackles of old disciplines,” their story depicted *huanbao* as a holistic framework that could transcend the narrow confines of their previous, ivory-tower science into something more expansively liberatory—as something that could break down the social contradictions

between peasants and workers, as something that was deeply informed by local experiences of the masses, as a way of seeing and resolving problems in a way that truly “put the people first”, and as something that gave the lie to Confucius and Lin Biao’s revisionist political line.<sup>330</sup>

An essay by the physicist Qian Weichang (钱伟长) at Qinghua University, published in the same 1974 issue of *EP*, made the same argument about the comprehensiveness of environmental science and its revolutionary potential for the masses, writing, “Environmental pollution and protection involve various industries and disciplines, making it the most comprehensive and mass-based technological science in human history [人类历史上遇到的最富有综合性的技术科学]. Therefore, promoting the masses, mobilizing the masses, and relying on the masses are essential conditions for carrying out this work.”<sup>331</sup>

Lastly, these young scientists framed their development of a *huanbao* consciousness as epiphanic or inspirational. This emotional, affective aspect of the narrative doubtlessly was an important aspect of communicating *huanbao*’s liberatory, revolutionary potential. The affective aspects of the story demonstrate how personal narrative retellings of experiences with *huanbao* contributed to its formation and dissemination within the Cultural Revolution—itsself a highly affective and emotional movement.

## IX. Conclusion

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<sup>330</sup> Environmental Geology Laboratory at the Guiyang Institute of Geochemistry, “Pi Lin Pi Kong, Zou Ziligengsheng Fazhan Huanjing Kexue de Daolu 批林批孔，走自力更生发展环境科学的道路 [Criticize Lin and Confucius, Pursue the Path of Self-Reliance and Development of Environmental Science],” *Huanjing Baohu* 环境保护 [Environmental Protection], no. 1 (January 1974): 3–6. I have provided a full translation in Appendix A.

<sup>331</sup> Qian, “Zibenzhuyi Guojia de Huanjingwuran 资本主义国家的环境污染 [Pollution in Capitalist Countries].”

Ultimately, *huanbao* was much more than a scientific discipline, despite the early stages of the materialization of something called “environmental science” (in China as in the rest of the world). Rather, it was a hugely encompassing syncretic framework that involved integrating a range of scientific disciplines, agricultural and industrial production practices that themselves sometimes approached different sciences, and political and ideological concerns. This meant that environmental problems were understood not as isolated technical issues but as symptoms of broader social, economic, and political systems. In an August 29 post-conference report, the National Planning Commission wrote to the State Council that the “three wastes” problem in the country was ultimately an “ideological issue, a superstructure issue.”<sup>332</sup> Yu Qiuli likewise said in his closing speech at the Great Hall of the People that the very first thing they all needed to do was “grasp the superstructure” and understand how “talking about pollution in terms of technology means pollution will not be solved well.”<sup>333</sup> This point was fundamental to the development of *huanbao* as a field of study and practice. By recognizing how social, economic, and political systems underpinned the creation of environmental issues and obstacles to their solutions, *huanbao* practitioners sought to develop a holistic and authentically revolutionary approach to environmental problems.

In the context of the late Mao period, the global adoption of the term “the environment” served as a way to unify previously distinct standpoint epistemologies like the factory worker and the peasant, and *their* representative integrated practices—comprehensive utilization of industrial waste and afforestation—with one another. *Huanbao* emerged as a sort of meta-

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<sup>332</sup> National Planning Commission 国家计划委员会, “Guojia Jihua Weiyuanhui Guanyu Quanguo Huanjing Baohu Huiyi Qingkuang de Baogao 国家计划委员会关于全国环境保护会议情况的报告 [Report on the National Conference on Environmental Protection by the National Planning Commission].”

<sup>333</sup> Yu, “Yu Qiuli Tongzhi Jianghua 余秋里同志讲话 [Speech by Comrade Yu Qiuli].”



integrationist schema, integrating lower-level integrationist practices like comprehensive utilization and afforestation together. From this perspective, the conceptual foundations behind the global turn toward “environmental protection”—seen in frameworks like systems analysis, ecology, and “the environment” itself in the mid-century—actually met extremely fertile soil in Mao’s China. At the very least, the Party itself by August 1973 did not see the basic ecological frameworks behind the global discourse of “environmental protection” as a challenge to Maoist ideology, but rather as complements to Maoist integrationist and holistic principles.

## CONCLUSION – Four Questions

### I. What were the implications of the Mao-Hua-Deng political transition for the evolution and interpretation of *huanbao*?

*Huanbao* theorists and thinkers throughout the 1970s were quick to insist on how *new* environmental science and *huanbao* were. The editors of *Environmental Protection* stated in their opening *fakanci*: “Doing a good job in environmental protection and eliminating the three wastes is a new thing that has emerged with the development of industrial production. We must enthusiastically support this new thing.”<sup>334</sup> The geochemists who studied the Keshan disease called it “a new problem,” “a new science,” and a “new fringe field of environment and human health.”<sup>335</sup> The Shijingshan Sanitation and Epidemic Prevention Station said in a March 1974 essay that treating the “three wastes” was akin to “blazing a new trail for the revolution.”<sup>336</sup> The newness of *huanbao* is, of course, one part of what made it so exciting and empowering to so many people. But behind this newness lurked also a certain instability. Even while the NCEP marked an effort by the Party-state to define *huanbao* and corral its meaning and practices into a rationally organized new environmental way of being, there was still much left open for future interpretation.

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<sup>334</sup> Benkan bianweibu本刊编辑部 [The editorial department of this magazine], “Fakanci 发刊词 [Editorial Foreword],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (1974): 1.

<sup>335</sup> Environmental Geology Laboratory at the Guiyang Institute of Geochemistry, “Pi Lin Pi Kong, Zou Ziligengsheng Fazhan Huanjing Kexue de Daolu 批林批孔, 走自力更生发展环境科学的道路 [Criticize Lin and Confucius, Pursue the Path of Self-Reliance and Development of Environmental Science],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (January 1974): 3–6.

<sup>336</sup> Shijingshan weisheng fangyizhan石景山卫生防疫站 [Shijingshan Sanitation and Epidemic Prevention Station ], “Yi Lv xian Wei Gang Zuo Hao Huanjing Jiance Gongzuo 以路线为纲, 做好环境检测工作 [Taking the Route as the Guideline, Carry out Environmental Monitoring Work Properly],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 2 (1974): 10–11.

The other part of what made *huanbao* so exciting was its interdisciplinary capaciousness, its ability to assimilate different knowledges in a digestible, comprehensive, and actionable way—it could illuminate all manner of specific problems, or in Maoist parlance, “contradictions”. Its intrinsic adaptability and inclusivity, however, also fostered ambiguity. The boundaries of *huanbao* were fluid. What exactly constituted *huanbao*, and who could claim authority over its definition, were questions that were never (and still are not) definitively answered. Different actors, from state officials to scientific researchers to ordinary citizens, all made and continue to make contributions to the evolving discourse of what it means to *baohu huanjing*. Retrospectively, one of the achievements of Maoist *huanbao* was to recognize the positionality of these different interpretations and to try to synthesize them in productive, organized ways.

*Huanbao*'s instability and ambiguity also made it malleable to the goals, politics, and logics of subsequent political regimes. This was no clearer and more drastic than during the Mao-Hua-Deng transition. The major change during the Mao-Hua-Deng transition was to link a scientific, bureaucratic, technocratic, and legalistic environmental regime with modernity itself. This particular vision of *huanbao* became a self-consciousness marker of modernity under Hua. This expert-based, legalistic, and technocratic environmentalism was more globally legible and reminiscent of approaches in capitalist, developed countries. In the parlance of Maoist science, this meant a shift from *tu* to *yang*.

Scholars often downplay and overlook Hua Guofeng's turn as top leader (October 1976 to December 1978), due in no small part to the titanic figures that sandwich him and his short tenure. But he played an important, if underappreciated, role in redefining the relationship between the Party-state and the environment. Remember that Hua gave an important closing

speech at the NCEP in 1973 and worked for Zhou Enlai on the State Council when environmental issues began to pique his interest in 1971. Hua had long been keenly aware of and exposed to China's environmental problems before coming to power. It should not be surprising that he so immediately took to making changes in reforming China's *huanbao* regime—however much those changes deviated from many of the ideas he expressed in his 1973 NCEP speech.

For example, Hua—with the rehabilitated Deng Xiaoping's help—actively fostered the idea that environmental science (*huanjing kexue* 环境科学) was the key epistemic framework for handling environmental problems. This grew from Hua's broader "Four Modernizations" program began in early 1978 (which was actually a plan Deng Xiaoping had articulated even before then) as part of the new 1978 Constitution, which Hua oversaw. The "Four Modernizations" were aimed at modernizing China's agriculture, industry, national defense, and science and technology. Environmental science, now a more coherent and recognizable field in its own right by 1978, was folded under the modernization of "science and technology". As a result, the Party-state equated advanced scientific and technological approaches to environmental issues, such as those that were practiced in the developed world, with modernity—and correspondingly, the lack of those approaches with "backwardness." This served to entrench professional scientific experts as the dominant knowledge-producers in the new *huanbao* regime.

Tu Guangchi (涂光炽), a researcher and director of the Geochemistry Institute in Guiyang, was selected to attend both the first session of the Fifth National People's Congress (held from February-March 1978) and the first ever National Science and Technology Conference (March 1978 全国科学大会 or NSTC). In an essay to *Environmental Protection*, Tu claimed that even

though some environmental accomplishments had been made in the early 1970s, the radical leftist Gang of Four had prevented real progress. “In general,” he wrote, “compared with the development and needs of the national economy, China’s environmental science industry is still quite backward [落后].” Now that the Gang of Four were out of the way—arrested by Hua in October 1976—real progress in environmental science could be made as the “strong east wind of socialist scientific education...will quickly blow away the backwardness and bring prosperity.” Tu quoted Hua’s speech at the NSTC (Deng also attended and gave important remarks), where he said to over 5,500 gathered scientists:

We must greatly improve the scientific and cultural level of the entire Chinese nation. We need to keep up with the rapidly changing pace of modern science and technology as quickly as possible. Rapidly changing the backward state of our country’s scientific and technological cause is the most essential, important condition for the high-speed development of the national economy and strengthening national defense, and it must arouse the high attention of the whole Party, the whole army, and the people of the whole country.

Tu commented to the readers of *Environmental Protection* that this “also included environmental science.”

Hua also sought to establish a legal foundation for *huanbao*. This was most emblemized in his addition of Article 11 to the 1978 Constitution which held the clause: “The state protects the environment and natural resources and prevents and eliminates pollution and other hazards to the public.” Tu cited praised the fact that the new Constitution had “written environmental protection into the country’s fundamental law,” an act which “reflected the superiority of China’s

socialism” over capitalist nations. Such countries he critiqued for only implementing lower-level regulations.<sup>337</sup> A correspondent from *Environmental Protection* also went to the NSTC. The correspondent wrote that a representative from the Ministry of Petroleum during the discussion of plans for future environmental protection work recommended that the only effective measures for implementing national environmental protection were national regulations. The representative stated moreover that environmental protection was not mainly a technical issue “at present”, but a “matter of measures not being implemented.” “If there are no strong organizational measures,” the representative concluded, “environmental protection may be neglected. The correspondent went on to say that a representative from the Chinese Academy of Social Sciences at the NSTC emphasized how Article 11 of the new constitution had now opened up the need to criminalize pollution and for a national legal regime aimed at enforcing environmental protection laws:

It is recommended to set up environmental protection inspection agencies...and inspectors have the right to check the situation of environmental protection work in all industries and places. We should commend those who make advancements, and at the same time, those who knowingly commit crimes and cause relatively serious or serious damage should be criticized, and those with serious circumstances should be held legally responsible.<sup>338</sup>

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<sup>337</sup> Tu Guangchi涂光炽, “Women Yiding Neng Ba Huanjing Baohu Shiye Gaoshangqu 我们一定能把环境保护事业搞上去 [We Can Definitely Improve the Environmental Protection Industry],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 2 (1978): 7.

<sup>338</sup> Benkan Tongxunyuanyuan 本刊通讯员 [a Correspondent of This Journal], “Dajia Doulai Guanxin Baohu Huanjing — Fang Quanguo Kexue Dahui de Yixie Daibiao 大家都来关心保护环境 — 访全国科学大会的一些代表 [Everyone Is Concerned about Environmental Protection - Interviewing Some Representatives at the National Science and Technology Conference],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 3 (1978): 3–4.

Even bird conservationists began to promote law-based approaches to the environmental problems in their domain. For example, in an essay published in the October 1978 issue of *Environmental Protection*, the conservationist Yan Ke wrote:

We should widely disseminate and educate people to comply with national regulations. Officials must obey the law, the public must obey the law, everyone must obey the law. Legal sanctions should be applied to those who illegally hunt and poach, and those who hunt precious birds and beasts that are protected by the state should be severely punished. We must enforce the socialist legal system.<sup>339</sup>

Gone were “three-in-one” combination teams, gone was the privileging of *tu* approaches to environmental problems, gone was Maoist skepticism of bureaucratism and professional expertise—in short, gone was much of the epistemological apparatus behind Maoist *huanbao*. Still, many aspects of *huanbao* as it was constructed during the Mao period remained, like the “three wastes”, comprehensive utilization, the language and authority of science, and the notion of a mass movement to curb pollution.<sup>340</sup>

Deng Xiaoping became China’s paramount leader soon after these events, in December 1978. His regime built on both the law-based and advanced scientific orientations for environmental protection established in Hua’s interregnum. In Deng’s view, legal reform was a

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<sup>339</sup> Ke Yan 燕可, “Niao Dao Na Qu Le? 鸟到那去了? [Where Did All the Birds Go?],” *Huanjing Baohu 环境保护 [Environmental Protection]*, no. 1 (January 1978): 10–12.

<sup>340</sup> “Ba Qianbaiwan Qunzhong Dongyuan Qi Lai, Tong Huanjing Wuran Zuo Douzheng - Xinhua She Jizhe Fangwen Guowuyuan Huanjing Baohu Lingdao Xiaozu Bangongshi 把千百万群众动员起来, 同环境污染作斗争——新华社记者访问国务院环境保护领导小组办公室 [Mobilize Millions of People to Fight against Environmental Pollution——Xinhua News Agency Reporter Visits the Office of the Environmental Protection Leading Group of the State Council],” *Renmin Ribao 人民日报 [People’s Daily]*, May 22, 1978.

central component in re-establishing political order which had imploded under Mao, an important reason for the chaos of the Cultural Revolution. Deng wrote in 1978:

To ensure people's democracy, we must strengthen our legal system. Democracy has to be institutionalized and written into law, so as to make sure that institutions and laws do not change whenever the leadership changes, or whenever the leaders change their views or shift the focus of their attention. The trouble now is that our legal system is incomplete, with many laws yet to be enacted.<sup>341</sup>

Without the protection of rule of law, so the logic went, China's environment would be dangerously beholden to Maoist caprice. The promulgation of the first environmental protection law soon followed, in 1979.

In official Party-state narratives following Deng's rise, the first era (1972-1978) of environmental protection efforts is ultimately discarded for its failure to materialize any broad legal or regulatory regime. The downfall of the Gang of Four and the repudiation of the "extreme" left line they represented posed an opportunity to diminish the troublesome fact of the advancements in this period, as many people began to suggest that the Gang of Four had held back the promising early developments around the 1973 NCEP. The problem with this framing is that Deng Xiaoping's implementation of legal reforms and establishment of bureaucracies with the word "environment" in the title has become synonymous with caring about the environmental and health consequences of industrialization. These approaches, in other words, confuse the global discursive formation of "environmental protection" and the routinized social,

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<sup>341</sup> As quoted in: Carlos W. H. Lo, "Deng Xiaoping's Ideas on Law: China on the Threshold of a Legal Order," *Asian Survey* 32, no. 7 (July 1, 1992): 649-65.



legal, political, bureaucratic, and political forms it takes with the issues that “environmental protection” is concerned about. The sense that a bureaucratized “environmental protection” regime is the only way to engage with the ecological and health problems caused by industrialization has worked to diminish, or even erase, the diversity of past efforts to grapple with environmental problems, their historical construction, and the different eco-social configurations they signified.

Post-Mao state-sponsored narratives try to make sense of the changing, historically constructed nature of *huanbao* by imposing a progressive teleology wherein Chinese knowledge and practice of “environmental protection” grew ever-more rational, honed, and scientific since the 1972 UNCHE but really more especially since the transition to Deng. This teleology can be observed in a 2010 book published by China Environmental Science Press (中国环境科学出版社) that commemorated environmental protection achievements during China’s reform and opening. The editors of the book wrote the following characterization of the story of *huanbao*:

Over the past 30 years [so roughly 1980], China’s environmental protection has gone through a course of struggle that is inseparable from the trajectory of China’s economic and social development. The development of China’s environmental protection cause...is a process of continuously deepening understanding and grasping objective laws. It is also a process of exploring how environmental protection policies, laws, systems, and measures can be gradually improved and play a powerful role in ensuring the rapid

development of the national economy while curbing environmental pollution and ecological destruction and improving urban and rural environmental quality.<sup>342</sup>

My goal in this dissertation has been to complicate this teleology and recover some of the incoherence, contingency, and complexity that it has obscured. My hope is that readers at least consider the counterfactual of what environmental program China would have had if Mao instead died in say, 1990, instead of 1976.

The other feature of these narratives is the larger irony that the bureaucratization and legal institutionalization of environmental protection upon Deng's rise in 1978 actually marks the beginning of a period when China's environmental conditions proceeded to get even worse. In a 2020 article, Zhenhua Xie, China's Special Representative for Climate Change Affairs, explained how environmental problems worsened decade by decade through to the 90s:

At that time [1990s], there was a common saying that “the water is fit to wash rice and vegetables in 1950s and for irrigating the land in 1960s, but the water quality deteriorates in 1970s, the fishes and shrimps die in 1980s, and the water is not fit to wash the toilet lids in 1990s.”<sup>343</sup>

Though there were certainly some markers of what we might now call “progress” in managing China's environment after 1978, there are in truth better reasons to see 1978 as China's environmental false dawn and not 1972. For all its material abundance and praise the Deng

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<sup>342</sup> Jian Shen 建沈 and Tang Dawei 唐大为, eds., *Gaige Kaifangzhong de Zhongguo Huanjing Baohu Shiye 30 Nian 改革开放中的中国环境保护事业30年 [30 Years of China's Environmental Protection in the Process of Reform and Opening Up]* (Zhongguo huanjing kexue chubanshe 中国环境科学出版社 [China Environmental Science Press], 2010), 1.

<sup>343</sup> Zhenhua Xie, “China's Historical Evolution of Environmental Protection along with the Forty Years' Reform and Opening-Up,” *Environmental Science and Ecotechnology* 1 (January 2020), 2.

regime gets for “finally” doing something about environmental problems through various bureaucracies and laws, Deng’s record on pollution and ecological degradation is arguably worse than Mao’s. As Joshua Goldstein put it, “[I]t seems indisputable that in the reform era industry has wrought environmental destruction and damage on the collective health of communities on a scale that dwarfs the despoiling of the Mao era.”<sup>344</sup>

Looking backward from today, one would be forgiven for wondering whether the Maoist *huanbao* theorists were correct when they said the real obstacle to resolving environmental problems was indeed political and social in nature. Likewise, the Maoist criticisms used to attack environmental problems in capitalist countries that were beholden to profit and production instead of general welfare of the people would have been just as aptly directed at the PRC of the past forty years. One of the biggest obstacles—and indeed accomplishments—of the early Deng regime was to cut short the Maoist *huanbao* project, erase Maoist analyses of environmental problems, and reappropriate *huanbao* for the Dengist modernizing, developmentalist regime. Dengist reformers needed to find a way to portray the sacrifice of ecological and human health that was so necessary to Deng’s developmentalist goals as progressive and in line with global understandings of environmental protection.

## **II. What are some underappreciated lasting legacies of the PRC’s efforts to confront so-called “public hazards” and environmental problems in the 1970s?**

### *Fixing in Place Specific Landscape Features as Problems*

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<sup>344</sup> Joshua Goldstein, *Remains of the Everyday: A Century of Recycling in Beijing* (University of California Press, 2020), 16.

The new practice of widespread chemical testing of China's water, earth, and air in the late Cultural Revolution also worked to problematize specific natural landscape features. The Guanting Reservoir offers one such example of how once a particular landscape feature became identified as a problem, it continued to draw in scientific and environmentalist attention over the ensuing decades and across political regimes. The identification of such features was an ongoing process, but in many cases the process began in the early 1970s.

Another example of this phenomenon is the Dongdagou stream (东大沟), located in the city of Baiyin in the western province of Gansu. Baiyin was once China's largest copper mining city from the 1950s to the late 1980s, when its metal deposits were largely exhausted. Baiyin's open-pit copper mines and mineral processing facilities dumped their industrial effluence into the Dongdagou stream for decades, beginning in the 1950s. Soon after the NCEP, in 1974, researchers from a hodgepodge of scientific institutes based in Gansu's capital, Lanzhou, went to Baiyin for the first time to investigate water and soil pollution caused by non-ferrous metal mining and processing. Together, the nine different investigation teams collected 769 samples. The results were troubling. The average content of cadmium, a toxic heavy metal byproduct of metal refining, in the surface soil of Baiyin's wastewater irrigation areas was 13.03 mg/kg, with the highest level being 68.8 mg/kg—31 times and 171 times higher than should be normal, respectively. In the tested crops, the average cadmium content was 0.74 mg/kg with the highest measure being 2.67 mg/kg, 15 and 52 times what should be normal. Analyses of cabbage and

flour also showed levels of cadmium several times higher than normal. Copper, lead, and zinc had permeated the soil around Baiyin, and the food that grew from it, at alarming levels.<sup>345</sup>

The investigators quickly determined that the source of this pollution was waste discharged by the BNMC operations through the Dongdagou stream. The Dongdagou stream began as a drainage channel from the enormous “Number One” open pit mine outside the city. The 38-kilometer-long stream ran north-south through the eastern part of Baiyin before ultimately flowing into the Yellow River. While the “Number One” open pit mine was the first polluter of the stream, many enterprises dumped wastewater into it, as did residential communities in Baiyin.<sup>346</sup> Because Baiyin is located in an arid, desert climate, farmers around Baiyin had little choice but to use wastewater from both the Dongdagou stream and the Yellow River to irrigate their crops. Many even used it as drinking water. In turn, this farmland produced food that the people of Baiyin ate. Many slowly and unknowingly were poisoning themselves.<sup>347</sup> The 1974 report concluded that “the pollution to soil and crops is very serious,” suggesting that more research was needed on the risks to human health and that those “responsible” in Baiyin—the BNMC and local authorities—needed to “adopt a serious attitude” to the problem of pollution and develop a plan to eradicate it as soon as possible.<sup>348</sup>

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<sup>345</sup> “Lanzhoushi Baiyindiqu Zhongjinshu Wuran Zhide Zhongshi 1977 [Heavy Metal Pollution in Baiyin Area of Lanzhou City Deserves Attention 1977],” 238-001-0004-0006, (Lanzhou, Gansu, China: Gansusheng danganguan [Gansu Provincial Archives]).

<sup>346</sup> Xibei kuangye yanjiuyuan [Northwest Mining Research Center], “Huanjing Yingxiang Baogushu [Report on Environmental Impacts]” (Xibei kuangye yanjiuyuan [Northwest Mining Research Center], October 1990), 6-7.

<sup>347</sup> Ni Dingwen, “Baiyinshi Dongdagou Liuyu Zhongjin Wuran de Fangkong Zhili Duice Yanjiu [Research on Countermeasures for Prevention and Control of Heavy Metal Pollution in the Dongdagou River Basin of Baiyin City],” *Gansu Keji [Gansu Science and Technology]* 31, no. 24 (December 2015): 6–11.

<sup>348</sup> “Lanzhoushi Baiyindiqu Zhongjinshu Wuran Zhide Zhongshi 1977 [Heavy Metal Pollution in Baiyin Area of Lanzhou City Deserves Attention 1977],” 238-001-0004-0006.

Despite these warnings, enterprises along the Dongdagou continued dumping wastewater into it for decades, eventually making it “the largest source of heavy metal pollution in the upper reaches of the Yellow River” according to Shui Qingchuan, the deputy director of the Baiyin Environmental Science Research Institute.<sup>349</sup> It has been the subject of dozens of studies, dissertations, and official investigations since the 1970s. A 1990 study by China’s Northwest Smelting Research group found that the Dongdagou’s pollution was still “extremely serious” and that arsenic, cadmium, and lead levels in its waters were much too high to be utilized for agriculture. A 2006 study of Baiyin’s soils and vegetables conducted by Lanzhou-based research centers drew the same conclusions as researchers thirty years prior: “the vegetables grown in Baiyin non-ferrous metals mining and smelting waste affected area have a hazardous effect on human health.”<sup>350</sup> Since the mid-2010s, officials have spent hundreds of millions of yuan and planted tens of thousands of trees to try to remedy the heavy metal contamination. Still, as recently as May 2022, a team of researchers from Gansu’s Laboratory for Environmental Pollution Prediction and Control at Lanzhou University concluded that plants in abandoned farmland around Baiyin still far exceeded an acceptable level of heavy metals and continued to pose a danger to livestock that grazed there. However, they also discovered that local plants had the ability to absorb heavy metals, raising the possibility of using innovative phytoremediation techniques to remove heavy metals from the soil.<sup>351</sup> Using native vegetation to remediate and purify Baiyin’s contaminated soil is just the most recent instance of the tradition dating to the

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<sup>349</sup> Baiyinshi Renmin Zhengfu [Baiyin People’s Government] “Hequ Huang Po Pi Shang Lv Yi! Gansu Baiyin Dazao Quanguo Zhongjinshu Wuran Zhili Yangban [The Barren Slopes of the Waterway Are Covered with Greenery! Gansu Baiyin Builds a National Model for Heavy Metal Pollution Control],”, July 13, 2022, [https://www.baiyin.gov.cn/ywdt/byyw6500/art/2022/art\\_e470cbda3d9949ae868663ee66155721.html](https://www.baiyin.gov.cn/ywdt/byyw6500/art/2022/art_e470cbda3d9949ae868663ee66155721.html).

<sup>350</sup> Li Yu et al., “Risk Assessment of Heavy Metals in Soils and Vegetables around Non-Ferrous Metals Mining and Smelting Sites, Baiyin, China,” *Journal of Environmental Sciences* 18, no. 6 (November 2006), 1132.

<sup>351</sup> Wu Yining et al., “The Heavy Metals Enrichment Characteristics of Native Plants in Abandoned Farmlands of Baiyin City, Northwest China,” *SSRN Electronic Journal*, 2022.

early 1970s in which local Chinese scientists and researchers draw from and contribute to global scientific discourse and knowledge about environmental problems.<sup>352</sup>

Through targeting specific geographical features for scientific scrutiny and testing, the early 1970s marked the onset of a critical spatial understanding of environmental degradation. The consequent social recognition of all kinds of local, regional, and national landscape features as potentially dangerous or threatening to public welfare meant that those features would long become magnets for scientific, public, and state attention. This period thus laid an important foundational layer of geographical knowledge concerning environmental problems—China’s map of pollution—that continues to inform environmental science and policy-making in China to this day.

### *Criticizing “Others”, Criticizing Ourselves*

Many of the critiques of and comparisons with public hazards in capitalist countries made in Chinese articles in the early 1970s unknowingly augured the environmental problems China itself would develop after the transition to Deng Xiaoping. For example, in 1972 the *Metallurgical Safety* editorial board ridiculed the severity of air pollution in capitalist countries:

As public hazards become more and more serious, industrially advanced capitalist countries have caused a state of near panic. In the capitalist world where everything can be bought and sold, capitalists even use public hazards to seek profits. Recently, a new “industry” has emerged on the streets of Tokyo, Japan and Paris, France: selling air. As

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<sup>352</sup> An Yan et al., “Phytoremediation: A Promising Approach for Revegetation of Heavy Metal-Polluted Land,” *Frontiers in Plant Science* 11 (April 30, 2020).

long as you invest a few pennies in the “vending machine” [自动器], you can breathe a little “fresh air.”<sup>353</sup>

In 2013, a Chinese entrepreneur named Chen Guangbiao sold cans of fresh air in China in order to—aside from make money—in order to “highlight the dangerous conditions of air pollution in the country.” He marketed varieties like “pristine Tibet” and “post-industrial Taiwan.” Echoing Maoist criticisms of pollution in capitalist countries that had been made forty years prior, Chen even said in one interview “If we don't start caring for the environment, then after 20 or 30 years our children and grandchildren might be wearing gas masks and carry oxygen tanks.”<sup>354</sup> In 2016, online retailers in China sold “pure, hand-bottled, pollution-free, oxygen-rich air from New Zealand” for US\$30.<sup>355</sup>

To double down on the irony, the 2010s Chinese phenomenon of buying “fresh air” was covered in Western media as a critique of the severe pollution problems in China.<sup>356</sup> As one *Mashable* article wrote of the phenomenon, Chinese entrepreneurs began selling bags of air from Canada as a pointed joke, but were surprised to find people actually buying it—a business *Mashable* called “absurdist”.<sup>357</sup> In short, Chinese critique of public hazards in capitalist countries

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<sup>353</sup> Benkan bianjizu 本刊编辑组 [Editorial Team], “Guowai Gongye Gonghai 国外工业公害 [Foreign Industrial Public Hazards].”

<sup>354</sup> Maureen Chowdhury, “In China, A Breath Of Fresh Air (In A Can),” *NPR*, February 3, 2013, <https://www.npr.org/sections/thetwo-way/2013/02/03/170891295/in-china-a-breath-of-fresh-air-in-a-can>.

<sup>355</sup> Liu Zhen and Liu Zhen, “China’s Smog-Hit Residents Willing to Pay over US\$30 for ‘Bottled Fresh Air,’” *South China Morning Post*, January 12, 2018, <https://www.scmp.com/news/china/society/article/2050086/chinas-smog-hit-residents-willing-pay-over-us30-bottled-fresh-air>.

<sup>356</sup> Kalyeena Makortoff, “Canadians Are Selling Cans of Fresh Air to China,” *CNBC*, December 16, 2015, <https://www.cbc.com/2015/12/15/canadians-are-selling-cans-of-fresh-air-to-china.html> ; see also: Carol Driver, “China Sells BOTTLED AIR to Tourists,” *Mail Online*, March 25, 2014, <https://www.dailymail.co.uk/travel/article-2588788/China-sells-BOTTLED-AIR-tourists.html>.

<sup>357</sup> Jason Abbruzzese, “Bottled Air Started as a Joke. Now China Can’t Get Enough.,” *Mashable*, October 29, 2021, <https://mashable.com/article/china-bottled-air-demand>.



in the early 1970s birthed a new critical environmentalist glossary that would later be turned inward throughout the post-Mao decades through to today. Another legacy is the idea that a nation's environmental status somehow is a direct reflection of its economic, political, and social system—an idea that continues to shape both US-PRC imaginations of one another.

### **III. How did natural, wildlife, or environment qua environment concerns fit into Maoist environmentalism—or did they?**

The terms “green” and “brown” environmentalism were not used in the Chinese context during this period, but they provide a helpful way to understand how different value systems shape approaches to environmental problems. “Green” environmentalism refers to concerns fixed on “natural ecosystems, habitats, and specific sites for the purpose of maintaining biodiversity”—that is, protecting nature for its own sake. “Brown” environmentalism refers to environmental thought directed at “limiting and mitigating pollution that is generated by human activities...that affect human health”—that is, protecting humans from the hazardous pollution that we cause ourselves.<sup>358</sup> Beginning in the 1990s, these terms have been used to describe two sides of the debate over whether environmental reforms ought to focus on saving nature itself—plants and animals (green)—or on “the urban environment and people’s basic right to a clean and healthy environment” (brown).<sup>359</sup>

While both of these environmentalisms seem self-evident to many of us today, and even deeply and intuitively interconnected, it is useful to consider their disunity in different historical

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<sup>358</sup> Kevin J. Olival, Robert L. Hoguet, and Peter Daszak, “Linking the Historical Roots of Environmental Conservation with Human and Wildlife Health,” *EcoHealth* 10, no. 3 (September 2013), 224.

<sup>359</sup> “The Green/Brown Debate | Sustainable Development & Environmental Awareness,” n.d., [http://www.enviropaedia.com/topic/default.php?topic\\_id=126](http://www.enviropaedia.com/topic/default.php?topic_id=126).

contexts. Boiled down, they reflect different premises and different subjects in the formulation of what constitutes an environmental problem. By these definitions, the Maoist approach to environmental protection—or *huanbao*—can be characterized as “brown” environmentalism. Indeed, as readers may notice, protecting nature for its own sake or concerns about wildlife hardly appear at all in Chinese discussions of *huanbao* during the early 1970s. Though beyond the scope of this dissertation, my research does suggest that it would be useful to think of “brown” and “green” environmentalism in China as representing two distinct historical genealogies—or at least we ought to consider their varying unity and disunity across time and space.

Moreover, consider that scholars writing about ecological destruction in the Mao period often attribute it largely to a Maoist anthropocentric ethic that fully prioritized human welfare over nature’s welfare—an ethic that was itself rooted in the deeper Confucian idea that nature is a “resource for human beings, to be shaped by human desires.”<sup>360</sup> However, once it was known in China—as elsewhere around the world—that industrial pollution was a serious threat to human welfare, it was the same Maoist anthropocentrism that spurred action to mitigate environmental problems. Maoist anthropocentrism was, in this sense, not an essential obstacle to the development of an environmentalist ethic—it actually facilitated it. In other words, foregrounding Maoist anthropocentric values and priorities explains both the environmental degradation that was caused by it *and* accounts for the environmentalist reaction to it. The main obstacle to Maoist sensitivity to environmental problems was not ideological, but was merely of

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<sup>360</sup> Judith Shapiro, *Mao’s War Against Nature: Politics and the Environment in Revolutionary China* (Cambridge University Press, 2001), 6, 212.

knowing about it and having certain conceptual tools. This same shift occurred in capitalist countries too, after all.

While concerns about wildlife and nature preservation more clearly fall under the purview of *huanbao* in the PRC today, it was much more peripheral at the very beginning. Still, it was not long after the NCEP that scientists and conservations advocated for centering wildlife and nature conservation in the broader *huanbao* project. For example, by the mid-late 1970s, it was common to encounter essays in *Environmental Protection* about animal conservation, the role of animals and insects in balancing ecologies, and the importance of nature reserves alongside essays detailing coursework of environmental science at U.S. universities, comprehensive utilization of the “three wastes,” and what “ecology” (*shengtai* 生态) means. One way to conceptualize this intellectual process is as Chinese scientists and intellectuals gradually applying new concepts that arose from their global disciplines’ engagement with environmental science to the “core” industrial and production-based practices of Maoist *huanbao*, like comprehensive utilization of the “three wastes”.

#### **IV. Does the truncated Maoist effort to develop a revolutionary environmentalism hold lessons or alternative models for us today?**

Writing in 2011, British geographer Erik Swyngedouw decried how the governance of environmental problems had become a “key arena” in which a “post-political consensus” had concreted: “[T]he presentation of climate change as a global humanitarian cause,” he wrote, “produces a thoroughly depoliticized imaginary, one that does not revolve around choosing one trajectory rather than another, one that is not articulated with specific political programs or socio-

ecological projects.” Swyngedouw condemned this post-political environmental consensus for the ways in which it “forestalls the articulation of divergent, conflicting, and alternative trajectories of future environmental possibilities and assemblages.”<sup>361</sup>

To this fatalistic sense that it is nowadays impossible to imagine a different “socio-ecological project,” it is worth returning to those observers of China’s environment in the early 1970s—specifically the people that Vaclav Smil in 1984 called “embarrassingly misinformed.”<sup>362</sup> One such person was the German-American economist Karl William Kapp, who published a short 1974 monograph on what he called “contemporary Chinese environmental policies.” As an economist and Marxist, he was intrigued by the topic because he thought the Chinese experience might have something to say for those (like him) that believed “the degradation of the human environment is above all a socio-institutional and hence a political problem”.<sup>363</sup> Basing his research solely on secondary literature and English-translated Party propaganda like *Red Flag* and *Peking Review*, Kapp found much to like in what he could find out about Chinese approaches. He admired that Chinese environmentalism seemed to be focused on the human “quality of life” as opposed to just the environment in and of itself, that the Maoist impetus to define away “waste” by finding a use for anything and everything was less myopic than Western approaches, that it also diagnosed in capitalism no real incentive mechanism for protecting the environment, and that maximizing economic output was not the only goal.

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<sup>361</sup> Erik Swyngedouw, “Depoliticized Environments: The End of Nature, Climate Change and the Post-Political Condition,” *Royal Institute of Philosophy Supplement* 69 (October 1, 2011): 253–74.

<sup>362</sup> Vaclav Smil, *The Bad Earth: Environmental Degradation in China*, (Zed Press, 1984), xi-xii.

<sup>363</sup> Karl William Kapp, *Environmental Policies and Development Planning in Contemporary China and Other Essays* (Mouton Hague Paris, 1974), 9.

To reveal something of my subjective position, I find in Kapp a kindred spirit. Much of what he found interesting about Chinese environmentalism in 1974 is what I find interesting about it in 2023. A difference is that the environmental crisis today is actually much more urgent than it was fifty years ago, and the possibility of some alternative environmental path that Maoist environmentalism once posed to people like Kapp appears increasingly out of reach. However, like many studies of China in the 1970s, and this is what Smil was getting at, Kapp took Maoist representations for reality and drew broad conclusions about the state of China's environment based more on what Maoist environmentalism was trying to do than on what it had actually done. The warning to take is not to assume the Chinese theories of environmentalism that I am describing here corresponded with a physical reality, instead of an intellectual or ideological or aspirational one. In this sense, a secondary goal here has been to excavate the moment of radical possibility that the Cultural Revolution posed to many Chinese people and non-Chinese people worried about the environment, in order to undermine the teleology of our present human-nature configurations.

Kapp and people like him help remind us of the role that Chinese thinking on the environment played in the “opportunities for thought, interpretation, and action” that Maoism opened to many disaffected people globally in the 1960s and 1970s.<sup>364</sup> Mao's Cultural Revolution captured the imagination of leftwing scholars and youths across the globe, elevating “China” as an empirically-blank but ideologically-rich canvas upon which people could imagine a different kind of modern state of social and political being. “Viewed from afar,” wrote historian Fabio Lanza of many young Asia scholars in the 1960s and 1970s, “China offered the

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<sup>364</sup> Fabio Lanza, *The End of Concern: Maoist China, Activism, and Asian Studies* (Duke University Press Books, 2017), 14.

possibility of alternative development, a more humane economy, and peaceful policies.” As we know, the reality of the factionalism and violence of the Cultural Revolution and the Dengist “dismantling” of Maoism after 1980 disrobed this romanticized portrayal. The perception of China as a bastion of eco-socialism seemed in sharp conflict with the realities of environmental degradation, prompting observers to reassess their understanding of the relationship between ideological principles and practical implementation. It made people like Kapp appear “embarrassingly misinformed.”<sup>365</sup> This was one way in which the possibilities posed not just by Maoist environmentalism, but by Maoism at large, have been foreclosed by history.

In the face of escalating climate change and global ecological collapse, the possibility for an alternative to what Swyngedouw referred to as our current “depoliticized” eco-social project continues to be relevant. The degree to which Maoist *huanbao* offers a real alternative for us today is indeed hard to entertain. In writing this dissertation, I do not mean to suggest the solution to the world’s escalating threats of climate change and ecological degradation is to read 1970s comprehensive utilization reports or NCEP speeches. The Maoist articulation of the project, after all, lasted only a few years.

But the effort to construct an environmental “Third Way” from the radical possibilities that the Cultural Revolution posed can serve as a useful reminder that eco-social or eco-political alternatives have been envisioned and have existed, however imperfect and incomplete. Perhaps some lessons can be taken from the conviction that environmental issues are not merely technical or scientific problems, but problems deeply interwoven with our political and societal configurations. Likewise, perhaps there is something to be said for an approach to environmental

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<sup>365</sup> Lanza, *The End of Concern: Maoist China, Activism, and Asian Studies*, 3-4.

solutions that are radically democratic and based on mass participation, or that simply do not “put production first”.

Our current eco-social paradigm was not inevitable, but rather the product of specific historical and political decisions—despite its claim to universality. Recognizing the historically contingent trajectories of all eco-social projects is useful because doing so undermines the assumed inevitability and ubiquity of our current global environmental paradigm. It provokes us to consider the deeply entrenched assumptions underpinning the “post-political consensus” of our current paradigm, opening space for imagination and dialogue on alternative futures.

In the end, the story of this specific moment of eco-social imaginary can serve as a reflection of our own challenges, as we grapple with the urgent need for new eco-social configurations that can effectively confront our intensifying global ecological crisis. It is imperative, particularly at this juncture, to continue excavating and critically analyzing historical models of environmental engagement and stewardship. We ought to do so not in order to replicate them in full, but to vitalize our ambitions about the possible trajectories before us.

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## Appendix A

“Criticize Lin Biao and Confucius, Take the Road of Self-reliance and Development Environmental Science” [批林批孔, 走自力更生发展环境科学的道路], by the Environmental Geology Laboratory, Guiyang Institute of Geochemistry, Chinese Academy of Sciences [中国科学院贵阳地球化学研究所, 环境地质实验室].<sup>366</sup>

With the rapid development of industrial and agricultural production, the environment in which people live is also rapidly changing its appearance, some of which have caused a decline in people's health and even harmed future generations. This is a new problem that arises with the development of human productivity. It is under such historical conditions of social development that environmental science is emerging as a new science. However, just like all sciences, environmental science serves the interests of different classes under different social systems. Environmental scientific research funds in capitalist countries come from monopoly capital groups, which determines that no matter how dazzling their environmental research names are, their purpose is only to grab the highest profit for monopoly capital.

In the development of environmental science, there is always a struggle between two lines: whether to humbly learn from the masses or follow the expert route; whether to go deep into factories and villages or conduct research behind closed doors in the laboratory; whether to summarize experiences from the extensive and in-depth practices in our country or just follow foreign working methods. In more than six years of environmental geological practice, we have realized that only by adhering to Chairman Mao's revolutionary line, criticizing Confucius and Lin Biao's reactionary views of “superior wisdom and foolishness” and “born with knowledge,” and humbly working as primary school students learning from workers, peasants, and soldiers [虚心作工农兵的小学生], can we develop environmental science with Chinese characteristics quickly and solidly.

### 1. Going to the Masses

In the spring of 1968, in the favorable situation of criticizing Liu Shaoqi's revisionist research line [刘少奇修正主义科研路线], and in the tide of scientists and technicians going deep into factories and rural areas, we carried our luggage and left the high-rise buildings and deep courtyards of our research institute. We came to the rural area of the Keshan disease [克山病] area in Heilongjiang Province to conduct environmental geological survey work. Keshan disease is a local cardiomyopathy with unknown causes, which occurs in many parts of northern China. The disease onset is rapid and death occurs quickly, posing a great threat to the vast number of poor and lower-middle peasants in the disease area. In the old society, it was common to see

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<sup>366</sup> Environmental Geology Laboratory at the Guiyang Institute of Geochemistry, “Pi Lin Pi Kong, Zou Ziligengsheng Fazhan Huanjing Kexue de Daolu 批林批孔, 走自力更生发展环境科学的道路 [Criticize Lin and Confucius, Pursue the Path of Self-Reliance and Development of Environmental Science],” *Huanjing Baohu 环境保护* [Environmental Protection], no. 1 (January 1974): 3–6.

entire villages abandoned due to the harm caused by Keshan disease. The biggest characteristic of Keshan disease is its obvious regionalism, with a clear boundary between the disease area and non-disease area, and no transmission between them. The majority of people in the disease area believe that Keshan disease is a “water and soil disease,” [水土病] caused by poor water and soil conditions.

As early as 1964, grassroots medical workers came to us and reflected the demands of the people in the disease area, hoping that we could go there to investigate the “water and soil” conditions. However, at that time, our thoughts were deeply bound by the revisionist research line and we failed to put this call from the masses on the agenda. During the Great Proletarian Cultural Revolution, when we reviewed Mao Zedong’s teaching that “why people’s problems are the fundamental issue, [为什么人的问题，是一个根本的问题的]” we unanimously felt that we should go to the Keshan disease area and do our utmost to relieve the suffering of the poor and lower-middle peasants. With the enthusiastic support of leaders at all levels and comrades in the institute, we quickly formed a small team and went to the rural areas of Heilongjiang, one of the most severe Keshan disease areas in China.

At that time, no one had ever worked on the new frontier field of the relationship between the environment and human health, neither did we have theories nor working methods. How should a few young people with bare hands face the vast uncultivated mountains and fields of Beidahuang [北大荒芜的山岗和田野]? We kept in mind Mao Zedong’s teachings and were determined to be honest and learn as little students of the masses.

We carried our luggage and walked from one village to another. During the day, we worked together with the poor and lower-middle peasants to investigate the terrain and soil, and at night, we held discussion meetings with them to learn about their experiences in preventing and treating diseases and their understanding of the causes of diseases. After a thorough investigation and study, we found that the areas where people frequently got sick were usually the mountainous areas with severe soil erosion, and the water that often caused illness was mostly soft water with low mineralization. On the other hand, in the plain areas with higher mineralization of hard water, the prevalence of Keshan disease was greatly reduced or even completely disappeared.

Before we went deep into the people’s lives, it was hard to imagine a relationship between heart disease and geological conditions. However, the more villages we visited and the more people we talked to, the more we realized the importance of this issue. Based on the experiences shared by the people, we conducted chemical analysis of the drinking water in the disease-prone and non-disease-prone areas, and the results showed that the water in the severely affected areas had significantly fewer inorganic elements than the water in the non-affected areas. The results of scientific experiments supported the claim that Keshan disease was a “water and soil disease” as proposed by the people, which encouraged us to explore this new scientific field with greater confidence.

In August of that year, our small team arrived at Tubuxing Commune, Arongqi, in Inner Mongolia. At a mass meeting, a blacksmith in the commune told us about his experience in treating Keshan disease with brine [卤水熬制的卤碱治疗]. When we visited his home, we were very surprised to see him up and working after years of being bedridden. In the past, many medical authorities had said that the mortality rate of Keshan disease was very high and it was an “incurable disease.” We analyzed the chemical composition of brine and found that it contained more than 30 kinds of trace elements, many of which were lacking in the drinking water and soil of Keshan disease-prone areas. Later, with the support of local leaders and the masses, we and medical personnel conducted large-scale clinical trials together and proved that the invention of the people had an effect on preventing and treating Keshan disease. This fact greatly educated us and made us deeply realize that those who truly understand Keshan disease are the vast number of poor peasants who have been fighting against Keshan disease for generations, and the valuable experience they have gained through exchanging their lives reflects the objective laws of Keshan disease. If we do not seriously study and summarize the experiences of the masses, we cannot touch the essence of Keshan disease in a short period of time, nor can we make any useful contributions to the people.

The emergence of brine salt [haloalkali 卤碱] proves that trace elements widely present in nature have a significant impact on human health. Although the mechanism of this impact is not yet clear, it indicated to us that there exists a new scientific field with great significance for human life. It is precisely with the inspiration and guidance of these mass experiences that the emerging discipline of environmental geology has established its theoretical basis and future development direction. It is evident that without the Great Proletarian Cultural Revolution, without the combination of intellectuals and the working masses, the thriving situation of the discipline of environmental geology would not have been possible. The ambitious bourgeoisie, conspirators, two-faced individuals, traitors, and national traitors like Lin Biao who try to negate the Great Proletarian Cultural Revolution and deny the creativity of the masses by waving the banner of Confucius’ “only the highest wisdom and the lowest foolishness are unchanging [唯上智与下愚不移],” must be resolutely criticized.

## 2. Continuously improve in practice

In order to uncover the mystery of Keshan disease occurring only in certain areas, we conducted a more than two-year investigation of the vast watershed of an inland river, with Keshan County in Heilongjiang Province as the focus.

At first, we suspected that the nature of the geological strata controlled the occurrence of Keshan disease, but when we compared the geological map with the distribution map of Keshan disease, we found that they did not match very well. Later, we saw that certain species of trees were related to the disease in some places, but in other places without these trees, the disease still occurred. Later, we found from the compiled meteorological data that the years with heavy rainfall were associated with severe Keshan disease, but some non-disease areas did not develop the disease even with heavy rainfall... What factor controls the occurrence of Keshan disease? It

seems that many natural factors are related to the disease, but each factor alone cannot fully explain the regional characteristics of the disease. We seemed to have fallen into a deep fog. At this time, many of us were discouraged, saying, “The more we investigate this Keshan disease, the more confused we become.”

In 1971, we focused on investigating the origin of Keshan disease in Keshan County. In this year, we, together with grassroots medical workers, braved the scorching sun and harsh winds, and visited almost every commune and village in the county. We held talks with poor and lower-middle peasants in every village, humbly learning from the masses. No matter how simple the conditions were, we carefully analyzed every water sample collected.

In numerous investigations, we have noticed that the people in villages with high rates of illness all say that their land is “water-logged [水岗地],” while those in villages without high rates of illness all say that their land is “fire-logged [岗地].” “Water-logged” and “fire-logged” are two terms that cannot be found in any geology textbook, but based on the feedback from the villagers, we have created a distribution map of “water-logged” and “fire-logged” land for the entire county and found that almost all of the villages with Keshan disease are indeed on “water-logged” land. We humbly consulted with the locals. The poor and lower-middle-class farmers in the area said that the soil in “water-logged” land has a high percentage of clay and is rich in water, making it resistant to drought but prone to waterlogging. The groundwater level is shallow, the water quality is mixed, and the ground is covered with many fir and birch trees. In contrast, the soil in “fire-logged” land has a high percentage of sand and is relatively dry, making it resistant to drought but not to waterlogging. The groundwater level is deep, the water quality is clean, and the ground is covered with many long cow hair grasses [长牛毛草]. The experiences of the villagers made us realize that the cause of Keshan disease may not be a single natural factor but may be the result of many factors in the environment acting together. The results of water analysis also show that there are significant differences between “water-logged” and “fire-logged” land. The geochemical conditions of “water-logged” land tend to be more redox [reduction-oxidation], while those of “fire-logged” land tend to be more oxidizing.

From this point on, our thinking underwent a leap, and a more comprehensive environmental concept began to take shape. Some people may say that this was the “inspiration” [灵感] of scientific researchers, but we know very well that this “inspiration” did not come from just any person’s sudden inspiration but was the result of long-term and in-depth practice and humble summarization of the villagers’ experiences.

Later, based on this new idea, we investigated the occurrence of Keshan disease and environmental conditions in Heilongjiang and created an environmental quality model map based on four factors: topography, climate, soil, and vegetation. This model map explains the regional distribution of Keshan disease and provides a scientific basis for further environmental transformation and prevention of Keshan disease.

### 3. Bravely Explore New Fields



In 1972, while we were still investigating Keshan disease, we received a new task: to study the pollution situation and water source protection of a reservoir.

Although we had been doing environmental work for several years, we felt very unfamiliar with this new task. In the past, we were used to dealing with natural mountains, rivers, and streams, but now we had to deal with factories, sewage, and pesticides. The research object was so different, could we really make up our minds to take on this task? Some comrades said, “You should concentrate on investigating Keshan disease. It’s not yet clear whether environmental pollution is the direction that geochemistry should focus on, and there’s no way to do it.” At this point, we remembered when we first started investigating Keshan disease back in 1968, some people also said it was “not the right thing to do” and “unorthodox.” At that time, we didn’t listen to that rhetoric, but instead used Mao Zedong’s teachings as our ideological weapon, focused on the urgent needs of the people, went deep into the masses, worked hard and practiced, and eventually found a way out.

It’s a new topic that we haven’t encountered before, what should we do? After being tempered by the Criticize Lin, Criticize Confucius movement, we were determined to carry forward the fearless spirit of swimming against the tide, dare to break through the old disciplinary constraints, and truly regard the urgent needs of the country and the people as the forward goal of our scientific research work. Environmental protection is a rapidly developing new thing, and it is common not to understand it. If you don’t understand, go to the masses, go to practice to learn, work hard to study new problems, seriously explore new laws, and find new ways forward.

In the winter of that year, we arrived at our assigned reservoir area, where the water surface was completely frozen, and the cold mountain winds blew strongly. In order to start monitoring the reservoir as soon as spring arrived the following year, it was necessary to quickly establish a laboratory. However, faced with only a few mud houses and crude conditions, as well as the severe cold weather, we were scared and felt some apprehension. At this time, the comrades and leaders from the reservoir introduced to us the importance of carrying out this work, making us realize that there was no time to waste and we couldn’t wait any longer to conduct this specialized research. Thus, together with the comrades from the reservoir, we engaged in the renovation project...The swift establishment of the reservoir monitoring laboratory further reinforced our understanding that knowledge alone, without the combination of intellectuals and workers, would lead to nothing. It was also a critique of the idea in our minds that “those who labor with their minds govern others, while those who labor with their hands are governed by others,” which was an ancient philosophy from Confucius and Mencius.

In the investigation of pollution sources, we learned that many production teams around a certain pesticide factory had significant objections to the factory. Many fields had reduced yields due to the impact of the factory’s wastewater, and the health of the poor and lower-middle peasants was also affected. Originally, the pesticide factory was supposed to directly serve agriculture, but due to its lack of attention to environmental protection, it became something that the poor and lower-middle peasants did not welcome. This incident greatly shocked us and made us gradually realize that doing a good job in environmental protection is not just about solving the problem of “three wastes,” but also a major issue related to protecting people’s health and consolidating the unity

of the working class and the peasantry. Although the task has changed from exploring Keshan disease to environmental protection, our humble acceptance of the re-education of workers, peasants, and soldiers cannot change.

Once, we consulted poor and lower-middle peasants about the issue of sewage flowing into fields. They said that when they first used wastewater from a chemical factory to irrigate the fields, the crops all died instantly, but when the water was later released again, nothing happened. Why did the water from the same drainage channel have different effects? Through long-term observation, they found that the properties of the sewage in the ditch often changed. When alkaline wastewater was used to irrigate the fields, the crops suffered losses, but when weakly acidic water was used, the crops grew very well. The reason was that the climate in the area was dry, and the soil was mostly alkaline. Irrigating the fields with weakly acidic water neutralized the alkalinity in the soil, improving the soil quality. Afterward, they mastered this rule and selected irrigation water according to its color and smell, and planned to stop irrigation to allow the soil to spontaneously restore its alkalinity, ensuring a good harvest every year... Under this ideological guidance, we worked with many brother units to formulate an environmental investigation plan for a certain river basin. Through a comprehensive investigation of industrial pollution sources, mine pollution sources, climate, soil, landforms, and hydrological conditions, we preliminarily determined the basic environmental situation of the upstream area of the reservoir and its ability and laws to transport pollutants to the reservoir, providing clues for protecting the reservoir water source and treating upstream industrial pollution sources.

In the development of environmental geology, we always feel that it is the wisdom and strength of the vast masses of people that are driving our work forward. Whenever we humbly learn from the masses, our work progresses quickly; whenever we become arrogant and complacent, our work immediately becomes stagnant and lacks vitality. Practice has also taught us that in the field of scientific research, which has been falsely portrayed as “sacred” in the past, the true masters and driving force are still the broad masses of working people... We must be brave soldiers in the field of scientific experimentation to defend Chairman Mao’s revolutionary line, adhere to self-reliance and develop environmental protection work, and strive to make greater contributions to the people and socialist construction.